PRINTRONIX®

S809

Programmer's Manual

Introduction

This publication provides information about the commands supported by your printer. The commands are organized by function groups. Each command has both a brief and a detailed description.
Each command has the following structure:
Name and function description. Information about protocol (IBM® Proprinter XL24-XL24AGM, IBM Personal 2391+, EPSON FX Series, ANSI 3.64, DBCS).

The hexadecimal and decimal codes for the command: n represents variable parameters of the command. The functions of these parameters are explained in its corresponding command description.

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Index of Command Summary in Alphabetical Order

This section contains a summary of commands used on the Printronix S809 model printer. It is divided into 2 separate sections. “Common commands for the Printronix S809 model printers” lists all the commands common to both the Single Byte Character Set (SBCS) and Double Byte Character Set (DBCS) features. “Commands for the Printronix S809 model printer with the DBCS feature present” lists commands that can only be used when the DBCS feature is present.

Common commands for the Printronix S809 model printers

Commands for the Printronix S809 model printer with the the DBCS feature present.

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Preface

Print Job Processing

There are no EPSON/IBM controls that explicity define print job boundaries. A print job for the Printronix S809 is established by the host system and consists of any set of related print objects. A print job could be as short as one character or could be many pages long.

As an aid to the printer operator, the printer provides a **DATA** indicator on the operator panel. When the **DATA** indicator is flashing, it indicates that data is currently being received, processed, or printing, or that data is buffered in the printer but cannot be immediately printed. If the **DATA** indicator is not lit, then all print jobs have been completed.

Configuration parameter values can be changed at any time; however, to obtain predictable results, changes to operator panel configuration parameter values should be made **before** the print job is sent to the printer and **after** the previous print job has completed printing. Changing configuration parameter values while a print job is in progress may cause unpredictable results.

Printronix Company recommends the following to ensure that your print jobs run correctly:
● Establish a known print environment, and end any previous print job. Start each print job with a Set Initial Conditions control or an Initialize Printer controlr. This control resets the printer environment to the default settings. You can then set additional controls depending on your print job environment.
● End each print job with a **FORM FEED** control. This control causes all data to be printed, and the current position is set to the top-of-form position.
● If a print job is abnormally terminated, the job should be canceled. See “Cancel Print” in “Chapter 2. Understanding the Operator Panel” in the Administrator’s Guide for your printer.

Page Printing Concept

The Printronix S809 processes print jobs in terms of pages, as well as in lines and columns. A page is a logical entity
whose boundaries are defined by the width and the page length. These boundaries are established during printer initialization using the printer defaults, and can be changed using the Configuration Menu or by issuing the appropriate data stream controls.

As a job prints, the printer controller maintains both the logical position and the physical position on the page. If a print job does not end with a proper job terminator (for example, FORM FEED), then:
● All data for the current page may not print
● The next print job may be misaligned on the form
● Residual data from a previous job could print with the new job.

Page Presentation

Many EPSON/IBM commands (tabs, margins, line spacing, for example) are described in terms of the presentation surface. A presentation surface is a two-dimensional surface upon which the printer positions symbols according to controls embedded in the incoming data stream. The presentation surface is defined in absolute terms by the width and depth parameters of the page size control commands (Set Page Length, Set Horizontal Margins, for example). The physical print position does not move outside the range of these two parameters. The left margin (LM) and right margin (RM) are variable parameters within the presentation surface. The logical print position does not move outside the range of the vertical margins nor outside the horizontal margins + 1. The following figure shows the presentation surface and the

relationships of some of these parameters.

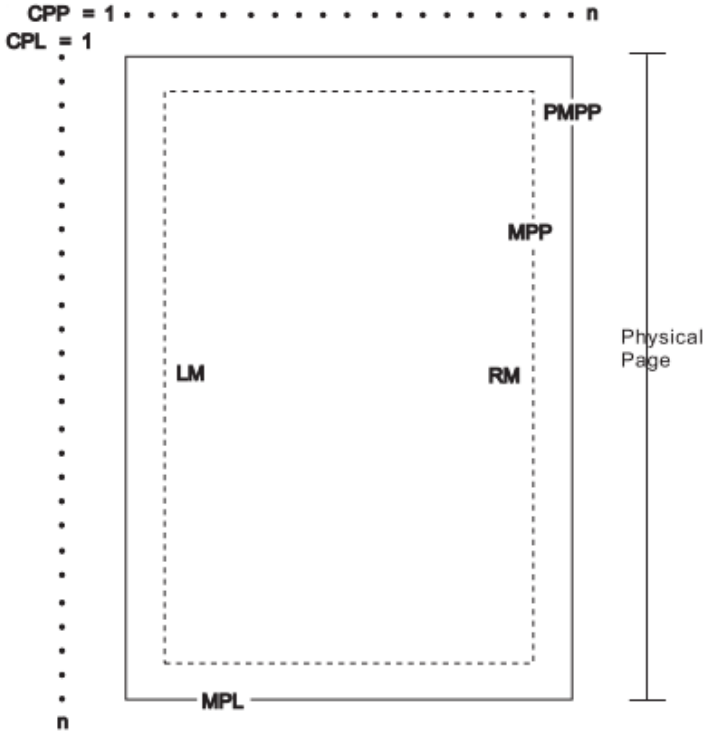

Figure 1 Page Presentation

CPP Current Print Position (LM = CPP = RM).
CPL Current Print Line
MPP Maximum Print Position (in characters at current CPI)
PMPP Physical Maximum Print Position. The largest number of characters that can be placed on one line of the surface (the largest value that MPP can assume).
LM Left Margin
RM Right Margin
MPL Maximum Page Length (in lines at current LPI)

Notes:
1. The host should set the limits of the presentation surface if the default or previous values are not acceptable.
2. The operator should align the physical paper so that it matches the logical presentation surface.

Also created with this surface is a pair of numbers (CPL and CPP) which specify the line number and column number where the next graphic will be printed. These internal values are the logical position on the presentation surface.

The variable parameters have default values which are established when the printer is initialized. The standard power-on defaults are:
MPP (width) Operator panel setting
MPL (depth) Operator panel setting
CPI Operator panel setting
LPI Operator panel setting
LM 0 inches (Column 1)
RM Equal to MPP
HT Horizontal tabs are set at each 8th column, starting with column 9 (9, 17, 25, 33, and so on.)
VT Vertical tabs are all cleared

Chapter 1. EPSON/IBM Commands

The following printer commands are supported by this printer according to the IBM Proprinter XL24-XL24 AGM, IBM 2391+ and EPSON LQ Series.

Print and Line Feed Execution

CR

Prints all received data and the column counter is set to the left margin (IBM/EPSON).

ASCII Code	CR
Hexadecimal Value	X'0D'
Decimal Value	13

This code is a terminator code; when received, it causes any data in the buffer to be printed out. The print head then moves logically to the left margin position. The column counter is set to the left margin value and a line feed is inserted automatically after the carriage return (see the automatic carriage return function in the printer setup). The code cancels the double width printing set by the SO or ESC SO command.

ESC]

Sets a reverse line feed. (IBM)

ASCII Code	ESC]
Hexadecimal Value	X'1B' X'5D'
Decimal Value	27 93

This is a terminator code; it therefore causes the current contents of the print buffer to be printed before advancing the paper by one line at the current vertical spacing. If no data precedes the LF code, or if the preceding data consists of spaces, the code only causes a line feed.

When the line counter reaches the last line of the form (defined by the software or the function menu), the LF code causes a skip to the first line of the next form. This code cancels the double width printing set by the SO code. In IBM mode, the column counter is set to the first column if the automatic carriage return is selected. In EPSON mode, the column is always set to the first column.

ESC 5

Sets an automatic line feed after a carriage return. (IBM)

ASCII Code	ESC 5 n
Hexadecimal Value	X'1B' X'35' n
Decimal Value	27 53 n

If n is equal to 1, this command sets an automatic line feed on receiving of a CR code. If n is equal to 0, this command cancels the automatic line feed.

n	Automatic line feed
0	Disabled
1	Enabled

ESC J

Advances paper n/216 inch. (EPSON/IBMXL24)
Advance paper n/180 inch. (EPSON/IBM XL24AGM)

ASCII Code	ESC J n
Hexadecimal Value	X'1B' X'4A' n
Decimal Value	27 74 n
Range	1 = n = 255

This is a terminator code; it causes the current contents of the print buffer to be printed before performing a single line feed of n/216 or n/180 of an inch. This command is cancelled after the line feed has been performed. The printing restarts after a line feed from the column at which the command was sent.

ESC j

Feed paper n/216 in reverse direction (EPSON)

ASCII Code	ESC J n
Hexadecimal Value	X'1B' X'6A' n
Decimal Value	27 106 n
Range	1 = n = 255

This is a terminator code; it causes the current contents of the print buffer to be printed. Then the paper is moved backward of n/216 of an inch. The printing restarts from the column at which the command was sent.

LF

Line Feed (IBM/EPSON).

ASCII Code	LF
Hexadecimal Value	X'0A'
Decimal Value	10

This is a terminator code; it causes the current contents of the print buffer to be printed before advancing the paper by one line at the current vertical spacing. If no data precedes the LF code, or if the preceding data consists of spaces, the code only causes a line feed.

When the line counter reaches the last line of the form (defined by software or function menu), the LF code causes a skip to the first line of the next form. This code cancels the double width printing set by the SO code. In IBM mode, the column counter is set to the first column if the automatic carriage return is selected. In EPSON mode, the column is always set to the first column.

Format Control

ESC $

Sets the absolute printing position. (EPSON)

ASCII Code	ESC & n1 n2
Hexadecimal Value	X'1B' X'24' n1 n2
Decimal Value	27 36 n1 n2
Range	0 = n1 n2 = 255

This command specifies the distance from the left margin to where you want to print subsequent characters. The distance is in number of dots and must be calculated using the following formula:

Margin distance = n1 +(n2 x 256) where n2 is the integer result of the number of dots divided by 256 and n1 is the remainder. 1 dot = 1/60 inch. If the selected position is outside the current right margin, the sequence is ignored.

ESC[\

Sets vertical units. (IBM)

ASCII Code	ESC [\ m1 m2 t1 ... t4
Hexadecimal Value	X'1B' X'5B' X'5C' m1 m2 t1 ... t4
Decimal Value	27 91 92 m1 m2 t1 ... t4
Range	m1 =4
	m2 =0
	0 = t1 = 255
	0 = t2 = 255
	t3 =0
	t4 = 180 or 216

This command changes the base units for the graphics line spacing commands (ESC J, ESC 3). The default is 1/216 or 1/180 inch.

ESC /

Selects the Vertical Format Unit (VFU) channel. (EPSON)

ASCII Code	ESC / m
Hexadecimal Value	X'1B' X'2F' m
Decimal Value	27 47 m
Range	0 = m = 7

This sequence selects the VFU channel that you want to use. Eight different channels are available. The m parameter represents the channel you want to select.

ESC \

Sets the relative dot position. (EPSON)

ASCII Code	ESC \ n1 n2
Hexadecimal Value	X'1B' X'5C' n1 n2
Decimal Value	27 92 n1 n2
Range	0 = n1, n2 = 255

This command specifies the distance between the current print head position and the position where you want to print subsequent characters (relative position). The distance is a number of dots and must be calculated using the following formula:

Current position distance = n1 +(n2 x 256)

where n2 is the integer result of the number of dots divided by 256 and the n1 is the remainder. The unit of dots is 1/120 inch for Draft or 1/180 inch for Letter Quality printing. If the distance is negative (Most Significant Bit of m2 equal to 1), the print head is moved to the left of the current position by the number of dots equal to the complement on two of n1 +(n2 x 256).

ESC 0

Sets vertical spacing to 1/8 inch (IBM/EPSON).

ASCII Code	ESC 0
Hexadecimal Value	X'1B' X'30'
Decimal Value	27 48

This code causes vertical spacing to be set to 1/8 inch.

ESC 1

Sets vertical spacing to 7/72 inch. (IBM)

ASCII Code	ESC 1
Hexadecimal Value	X'1B' X'31'
Decimal Value	27 49

This command causes vertical spacing to be set to 7/72 inch.

ESC +

Sets n/360-inch line spacing. (IBM)

ASCII Code	ESC + n
Hexadecimal Value	X'1B' X'2B' n
Decimal Value	27 43 n
Range	0 = n = 255

This command sets the line spacing to n/360 inch. If the line spacing is changed, it does not affect previous settings for vertical tabs or page length.

ESC 2

Sets the vertical spacing to 1/6 inch. (EPSON)

ASCII Code	ESC 2
Hexadecimal Value	X'1B' X'32'
Decimal Value	27 50

This command causes the vertical spacing to be set to 1/6 inch.

ESC 2

Enables the vertical spacing set by ESC A. (IBM)

ASCII Code	ESC 2
Hexadecimal Value	X'1B' X'32'
Decimal Value	27 50

This command enables the vertical spacing sets by ESC A.

ESC 3

Sets vertical spacing to n/180 inch. (IBM XL24AGM, EPSON)

ASCII Code	ESC 3 n
Hexadecimal Value	X'1B' X'33' n
Decimal Value	27 51 n
Range	1 = n = 255

This sequence sets the vertical spacing to n/180 inch. It is ignored if n is equal to 0.

ESC 3

Sets vertical spacing to n/216 inch. (IBM XL24/ 2391+)

ASCII Code	ESC 3 n
Hexadecimal Value	1B 33 n
Decimal Value	X'27' X'51' n
Range	0 = n = 255

This sequence sets the vertical spacing to n/216 inch.

ESC 4

Sets the current position as top of form (first printable line). (IBM)

ASCII Code	ESC 4
Hexadecimal Value	X'1B' X'34'
Decimal Value	27 52

This sequence sets the first line of the fanfold paper as the current paper position of the form.

ESC A

Sets variable vertical spacing to n/60 inch. (EPSON/IBM XL24AGM)

ASCII Code	ESC A n
Hexadecimal Value	X'1B' X'41' n
Decimal Value	27 65 n

This command changes the default vertical spacing to n/60 inch. The new vertical spacing value is immediately activated.

ESC A

Sets variable vertical spacing to n/72 inch. (IBM XL24 AGM/IBM 2391+)

ASCII Code	ESC A n
Hexadecimal Value	X'1B' X'41' n
Decimal Value	27 65 n

This command changes the default vertical spacing to n/72 inch. The vertical spacing value is stored and activated only after the ESC 2 code is received.

ESC B

Sets vertical tab stops (IBM/EPSON).

ASCII Code	ESC B n1 ... nx 0
Hexadecimal Value	X'1B' X'42' n1 ... nx 0
Decimal Value	27 66 n1 ... nx 0
Range	1 = n = 255

In EPSON mode, it sets the vertical tab stops in the 0 Vertical Format Unit (VFU) channel. This code sets up to 16 vertical tab stops at the line specified by n1, n2 and so on in the 0 VFU channel. The tab stops are memorized as physical positions. In IBM mode, this code sets up to 64 vertical tab stops at the line number specified by n1, n2 and so on in the 0 VFU channel. The tab stops are retained as logical positions.

ESC B NUL

Resets vertical tab stops (IBM/EPSON).

ASCII Code	ESC B NUL
Hexadecimal Value	X'1B' X'42' 00
Decimal Value	27 66 00

This command resets the vertical tab stops in the 0 Vertical Format Unit (VFU) channel.

ESC b

Sets vertical tab stops in one of the 8 Vertical Format Unit channels available. (EPSON)

ASCII Code	ESC b mn1 ... nx 0
Hexadecimal Value	X'1B' X'62' mn1 ... nx 00
Decimal Value	27 98 mn1 ... nx 0
Range	0 = m = 7
	1 = n1 ... nx = 255

This sequence sets vertical tabulations in the VFU channel specified by the parameter m.

The VFU channel can be imagined as a blank page where you can set up to 16 vertical tabulations in order to format your page as you like. 8 channels are available and in each of them you can create a sample page that you can recall later. n1 to n16 specify the lines at which vertical tabulations must be set.

The values of n must be in ascending order. If you change the vertical spacing, the vertical tabulations set are not cancelled and they maintain their physical position on the page.

The vertical tabulations set in the channel specified by the m parameter are executed by the VT code when the specific channel is selected by the ESC / command, this code is executed as a line feed.

ESC b NUL

Resets vertical tab stops in one of the 8 Vertical Format Unit channels available. (EPSON)

ASCII Code	ESC b NUL
Hexadecimal Value	X'1B' X'62' X'00'
Decimal Value	27 98 0

This command resets the vertical tab stops in one of the 8 Vertical Format Unit channels available.

ESC C 0 n

Sets form length to n inches (IBM/EPSON).

ASCII Code	ESC C 0 n
Hexadecimal Value	X'1B' X'43' X'00' n
Decimal Value	27 67 0 n
Range	1 = n = 24

This command sets the form length to the number of inches specified by n. The current position of the paper is assumed as the top-of-form.

ESC C n

Sets form length to n lines (IBM/EPSON).

ASCII Code	ESC C n
Hexadecimal Value	X'1B' X'43' n
Decimal Value	27 67 n
Range	1 = n = 255

This command sets the form length to the number of lines specified by n at the current vertical spacing. The current position of the paper is assumed as top-of-form.

ESC D

Sets horizontal tab stops (IBM/EPSON).

ASCII Code	ESC D n1 n2 ... nx 0
Hexadecimal Value	X'1B' X'44' n1 n2 ... nx 00
Decimal Value	27 68 n1 n2 ... nx 0
Range	1 = n = 255

This sequence sets up to 28 (IBM mode) or 32 (EPSON mode) horizontal tab stops after canceling the current setting. The n1 to nx parameters specify the number of columns at which horizontal tab stops are required and must be entered in the sequence in ascending numerical order. Any value outside this range is ignored. In IBM mode, the tab stop position is retained as a logical position in the page so that it is affected by changing the horizontal spacing. The columns are numbered 1 through 136. In EPSON mode, the tab stop position set by ESC D is retained as the physical position on the page and therefore it is not affected by changing the horizontal spacing. The physical position of the tab stop depends on the horizontal spacing in operation when ESC D is used. The ESC D 0 cancels all active tab stops.

ESC d

Spaces forwards relative dot position. (IBM)

ASCII Code	ESC d n1 n2
Hexadecimal Value	X'1B' X'64' n1 n2
Decimal Value	27 100 n1 n2
Range	0 = n1 n2 = 255

This command moves the print carriage (n1 +(n2*256))/120 of an inch displacement on the right of its current dot position. If the selected position is outside the current right margin, it is forced to the last column.

ESC e

Spaces backward relative dot position. (IBM)

ASCII Code	ESC e n1 n2
Hexadecimal Value	X'1B' X'65' n1 n2
Decimal Value	27 101 n1 n2
Range	0 = n1 n2 = 255

This command moves the print carriage (n1 +(n2*256))/120 of an inch displacement on the left of its current dot position. If the selected position is outside the current left margin, it is forced to the first column.

ESC l

Sets left margin. (EPSON)

ASCII Code	ESC l n
Hexadecimal Value	X'1B' X'6C' n
Decimal Value	27 108 n
Range	0 = n = 255

This code sets the left margin at the current horizontal spacing. It must be sent at the beginning of the line. The n parameter specifies the number of columns. For each type of horizontal spacing there is a different range of possible values, as shown in the following table:

Character Width	Horizontal Spacing	Range of columns
Double Width	5 cpi	0 = n = 67
	6 cpi	0 = n = 80
	7.5 cpi	0 = n = 100
	8.5 cpi	0 = n = 114
	10 cpi	0 = n = 134

Character Width	Horizontal Spacing	Range of columns
Normal	10 cpi	0 = n = 134
	12 cpi	0 = n = 160
	15 cpi	0 = n = 201
	17 cpi	0 = n = 229
	20 cpi	0 = n = 255
	24 cpi	0 = n = 255

Any value outside the accepted range is ignored and the previous setting remains in effect. The left margin must be smaller than the right margin. The physical position set for the left margin does not change if the horizontal spacing is modified. This command overrides the menu setting.

ESC N

Sets the skipover perforation to n lines (IBM/EPSON).

ASCII Code	ESC N n
Hexadecimal Value	X'1B' X'4E' n
Decimal Value	27 78 n
Range	1 = n = 127 (EPSON mode)
	1 = n = 255 (IBM mode)

The skipover perforation is the sum of the top and bottom margin values at the selected vertical spacing. The n parameter must be less than the current form length. The skipover is retained as the physical position on the page. It is cancelled by ESC O or changing the form length.

The skipover value, when accepted, sets the top and bottom margins according to the operator panel setting (see the Administrator's Manual):

If the top margin set using the operator panel is greater than the skipover value, the following value of the margins is set:

Top margin = skipover value
Bottom margin = 0

If the top margin set using the operator panel is less than or equal to the skipover value, then the following value of the margins is set:

Top margin = operator panel value
Bottom margin = the difference between skipover value and top margin value

If the sum of the top and bottom margins values set using the operator panel is less than the skipover value, the following values for the margins is set:
Top margin = operator panel value
Bottom margin = the difference between skipover value and top margin value

Changing the vertical spacing does not affect the skipover distance. This can be changed by another ESC N command or can be reset by the ESC O command, which resets the skipover value to 0. The skipover perforation is performed when the end of the page is reached with a LF, VT or FF code and not with the ESC J or ESC C command. The skipover perforation is cancelled and must be reset.

ESC O

Disables the skipover perforation (IBM/EPSON).

ASCII Code	ESC O
Hexadecimal Value	X'1B' X'4F'
Decimal Value	27 79

This sequence sets the number of lines of the skipover perforation to the value 0. Any skip perforation set by ESC N is cancelled.

ESC Q

Sets the right margin. (EPSON)

ASCII Code	ESC Q n
Hexadecimal Value	X'1B' X'51' n
Decimal Value	27 81 n
Range	1 = n = 225

This code sets the line length at the current horizontal spacing. It must be sent at the beginning of the line.

The n parameter specifies the number of columns and for each type of horizontal spacing there is a range of values, as shown in the following table:

Character Width	Horizontal Spacing	Range of columns
Double Width	5 cpi	1 <= n <= 67
	6 cpi	1 <= n <= 81
	7.5 cpi	1 <= n <= 101
	8.5 cpi	1 <= n <= 111
	10 cpi	1 <= n <= 135
Normal	10 cpi	1 <= n <= 135
	12 cpi	1 <= n <= 162
	15 cpi	1 <= n <= 203
	17 cpi	1 <= n <= 232
	20 cpi	1 <= n <= 255
	24 cpi	1 <= n <= 255

Any value outside the accepted range is ignored and the previous setting remains in effect. The right margin must be greater than the left margin. The physical position set for the right margin does not change if the horizontal spacing is modified.

ESC R

Sets horizontal and vertical tab stops to default values. (IBM)

ASCII Code ESC R
Hexadecimal Value X'1B' X'52'
Decimal Value 27 82

This command sets horizontal tab stops every eight columns starting from column 9 and cancels all vertical tab stops.

ESC SP

Sets intercharacter space. (EPSON)

ASCII Code	ESC SP™ n
Hexadecimal Value	X'1B' X'20' n
Decimal Value	27 32 n
Range	0 = n = 225

This command sets the intercharacter space to n/120 inch in Draft printing and n/180 inch in Quality printing.

ESC X

Sets left and right margins. (IBM)

ASCII Code	ESC X n1 n2
Hexadecimal Value	X'1B' X'58' n1 n2
Decimal Value	27 88 n1 n2
Range	0 = n = 134 (left margin)
	2 = n = 136 (right margin)

This command sets the left and right margins at the same time. The n1 and n2 parameters indicate respectively the number of columns for the left and right margins at the current spacing. These margins are retained in terms of absolute displacement from the physical left edge of the page. Use a CR immediately after ESC X n to establish the print head position relative to the new margin setting.

If n1 is equal to 0, the current left margin of the page is used. If n2 is equal to 1, the current right margin of the page is used. The left margin value must be less than the right margin value. The right margin value must not exceed the physical right edge of the paper; otherwise the maximum acceptable value for the right margin will be set.

FF

Advances paper to the top of the next page (IBM/EPSON).

ASCII Code	FF
Hexadecimal Value	X'0C'
Decimal Value	12

This code is a terminator code, when received, causes all data in the print buffer to be printed out. Then it advances the paper to the first printable line of the next form. The line counter is set to the first line value and the column counter is set to the left margin value. This code cancels the double width printing set by SO code.

HT

Logically moves the print carriage to the next horizontal tab stop (IBM/EPSON).

ASCII Code HT
Hexadecimal Value X'09'
Decimal Value 9

This code logically moves the print carriage to the next horizontal tab stop as defined by ESC D. Up to 28 (IBM mode) or 32 (EPSON mode) horizontal tab stops can be set. The HT code is ignored if no tab stop is set, the current print carriage position is moved past the last tab position, or the tab stop is on or beyond the right margin. When the printer is powered on, the tab stops are set every eight columns (default).

In EPSON mode, the default tab stops are retained as logical positions in the page that are affected by changing the horizontal spacing. The tab stop positions set by ESC D are retained as physical positions on the page and are not affected by changing the horizontal spacing. When double width printing is selected, the tab stop setting must take into account that each character occupies two columns. In IBM mode, the tab stops, both the default and those set by ESC, are retained as logical positions in the page that are affected by changing the horizontal spacing. The horizontal tab stops can be changed by the ESC D command.

VT

Advances paper to the next vertical tab stop of the selected VFU channel (IBM/EPSON).

ASCII Code	VT
Hexadecimal Value	X'0B'
Decimal Value	11

This is a terminator code and when received causes the contents of the print buffer to be printed before advancing the paper to the next vertical tab stop set by the ESC B or the ESC b commands.

This code is run normally if vertical tab stops follow the current print position. It runs like an FF code (EPSON mode) or like a LF code (IBM mode), if the vertical tab stops follow the bottom of form position (corresponding to the form length if the bottom of the form has not been set), or if the current position is beyond the last vertical tab stop. It runs like an LF code if no vertical tab stops have been set by the ESC B or ESC b commands.

In EPSON mode, the vertical tabulations are referred to the VHF channel selected by the ESC / m.Ifno VFU channels have been selected, the printer assumes the default channel 0.

This command cancels the double width printing set by SO or ESC SO command.

Print Mode

DC2

Sets 10 cpi printing. (IBM)

ASCII Code	DC2
Hexadecimal Value	X'12'
Decimal Value	18

This is a terminator code. It causes all data present in the print buffer to be printed. This command is accepted at any position within the line. The character that follows this command is printed at 10 cpi.

DC2

Cancels compressed printing. (EPSON)

ASCII Code	DC2
Hexadecimal Value	X'12'
Decimal Value	18

This is a terminator code. It causes all data present in the print buffer to be printed. This command is accepted at any position within the line. The character that follows this command is printed as follows:

17 CPI . 10 CPI
20 CPI . 12 CPI

DC4

Cancels double width printing (IBM/EPSON).

ASCII Code	DC4
Hexadecimal Value	X'14'
Decimal Value	20

This code cancels the double width printing set by SO or ESC SO code. It has no effect if the ESC W or ESC ! command is set to double width.

ESC -

Sets or cancels underlined printing (IBM/EPSON).

ASCII Code	ESC - n
Hexadecimal Value	X'1B' X'2D' n
Decimal Value	27 45 n

Enables or disables underlined printing. See the following table:

n	Underlined Printing
1	enabled
0	disabled

ESC !

Sets printing style. (EPSON)

ASCII Code	ESC ! n
Hexadecimal Value	X'1B' X'21' n
Decimal Value	27 33 n

This command is used to select any valid combination of printing attributes. Each printing attribute is selected by the nparameter, as specified in the following page:

n	Attribute
0	10 cpi
1	12 cpi
2	Proportional
4	Compressed
8	Emphasized
16	Double Strike
32	Double Width
64	Italics
128	Underline

To print the desired combination of printing attributes, calculate the nparameter by adding up the values of each attribute.

ESC(-

Sets score line. (EPSON)

ASCII Code	ESC (- n1 n2 m d1 d2
Hexadecimal Value	X'1B' X'28' X'2D' n1 n2 m d1 d2
Decimal Value	27 40 45 n1 n2 md1 d2
Range	n1 =3
	n2 =0
	m=1
	1 = d1 = 3
	d2 =0,1,2,5,6

This command enables or disables scoring of all characters and spaces following the command according to the following parameters:

d1	Line
1	Underline
2	Strikethrough
3	Overscore

d2	Line
0	Cancel score line
1	Single continuous line
2	Double continuous line
5	Single broken line
6	Single broken line

Any combination of scoring may be used at the same time and are independent of each other. Graphics characters are not scored.

ESC [-

Selects the score line. (IBM 2391 + only)

ASCII Code	ESC [- n1 n2 loc type
Hexadecimal Value	X'1B' X'5B' X'2D' n1 n2 loc type
Decimal Value	27 91 45 n1 n2 loc type
Range	n1 =2
	n2 =0

This command selects several forms of overscore, underscore, and strikethrough.
To select loc: To select type:

loc	Selection	type	Selection
1	Underscore	0	Cancles Line
2	Strikethrough	1	Single Line
3	Overscore	2	Double Line
		255	Cancels all score selections

ESC :

Sets 12 CPI. (IBM)

ASCII Code	ESC :
Hexadecimal Value	X'1B' X'3A'
Decimal Value	27 58

This is a terminator code. It causes all data present in the print buffer to be printed. Subsequent data is printed at 12 cpi. This command is accepted at any position within the line. The setting of another horizontal spacing resets this command.

ESC <

Prints characters for one line from left to right. (EPSON)

ASCII Code	ESC <
Hexadecimal Value	X'1B' X'3C'
Decimal Value	27 60

This command causes the printing of one line from left to right.

ESC [@

Selects the printing type style. (IBM 2391 + only)

ASCII Code	ESC [@ 40m1 0m3 m4
Hexadecimal Value	X'1B' X'5B' X'40' 04*00*m1 00*m3 m4
Decimal Value	27 91 64 40m1 0m3 m4

(*) These values are constants.

This command is used to modify the type style of the character and the number of line spacing. Use this command for:

1. Italic printing
2. Single-high character
3. Double-high character
4. Single-wide character
5. Double-wide character
6. Single Line Feed
7. Double Line Feed

These selections may be combined, for example, italic print with double height or doublewide character and double line feed.

See the following tables for m1, m3 and m4 selections:

m1	Selection	m3	Selection	m4	Selection
0	No Change	0	No Change	0	No Change
1	Start Italic Printing	1	Single-High Character	1	Single-Wide Character
2	Stop Italic Printing	2	Double-High Character	2	Double-Wide Character
4	Start Outline	4	Single Line Feed	4	Single Line Feed
8	Stop Outline	8	Double Line Feed	8	Double Line Feed
16	Start Shadow	16			
32	Stop Shadow	32			

ESC [@

Sets double high printing and double line feed. (IBM)

ASCII Code	ESC [@ l h m1 m2 m3 m4
Hexadecimal Value	X'1B' X'5B' X'40' l h m1 m2 m3 m4
Decimal Value	27 91 64 l h m1 m2 m3 m4

l= normally 4, h= normally 0, m1 =0, m2 =0
This command sets height, width, and vertical spacing.
The land hparameters specify the number of mode bytes mx contained in the sequence.
The m3 and m4 parameters specify the printing characteristics.

The m3 parameter controls both line spacing and character height. It has two parts: a high-order half-byte of m3 controls the line spacing and the low-order half-byte controls the character height.

m3	Character Height	Line Spacing
0	No Change	No Change
1	Standard character height	Line feeds unchanged
2	Double character height	Line feeds unchanged
16	Character height unchanged	Normal line feeds
17	Standard character height	Normal line feeds
18	Double character height	Normal line feeds
32	Character height unchanged	Double line feeds
33	Standard character height	Double line feeds
34	Double character height	Double line feeds

The m4 parameter specifies the character width. Only the low-order half-byte is significant in this mode byte. The high-order half-byte is ignored.

m4	Character Width	Line Spacing
0	No change	Standard width character
1	Double width character	No change
2	No change	No change

ESC [d

Set the print quality. (IBM 2391 + only)

ASCII Code	ESC [d 10n
Hexadecimal Value	X'1B' X'5B' X'64' 0100n
Decimal Value	27 91 100 10n

This command sets the print quality to draft or LQ print.

n	Types
0	No Change
From 64 to 127	Draft
From 128 to 254	Letter Quality
255	Initialization on NVRAM values

ESC [I

Sets font and pitch of a character. (IBM 2391 + only)

ASCII Code	ESC [I 2 0 m n
Hexadecimal Value	X'1B' X'5B' X'49' 02 00 m n
Decimal Value	27 91 73 2 0 m n

This command allows you to modify the character's font and style of pitch type.

The values 2 and 0 are constants. If font and pitch locks are active, this command is ignored. To select the values for the variables m and n, which identify the pitch and the font type style to use, refer to the table below.

1. Identify the type style (pitch and font) to use in the left column (pitch).
2. For the hexadecimal values of m and n, look across the row to the second column (Hex mn)
3. For the decimal values for m and n, look across the row to the third column (Decimal mn).
4. Substitute these values for m and n in the printer command syntax.

Pitch	**Hexadecimal**		**Decimal**		**Dec. Value**
	m	**n**	**m**	**n**	**(m x 256 + n)**
Courier					
10	X'00'	X'00B'	0	11	11
12	X'01'	X'EB'	1	235	491
15	X'01'	X'EC'	1	236	492
17	X'01'	X'ED'	1	237	493
20	X'01'	X'EE'	1	238	494
24	X'01'	X'1E'	1	30	286

Pitch	**Hexadecimal**		**Decimal**		**Dec. Value**
	m	**n**	**m**	**n**	**(m x 256 + n)**
Gothic					
10	X'00'	X'24'	0	36	36
12	X'01'	X'8F'	1	143	399
15	X'01'	X'8E'	1	236	398
17	X'01'	X'8D'	1	237	397
20	X'01'	X'8C'	1	238	396
24	X'01'	X'20'	1	30	288
PS	X'01'	X'AE'	1	174	174
Script					
10	X'01'	X'D4'	1	212	468
12	X'01'	X'D5'	1	213	469
15	X'01'	X'D6'	1	214	470
17	X'01'	X'D7'	1	215	471
20	X'01'	X'D8'	1	216	472
24	X'01'	X'24'	1	36	292
PS	X'01'	X'C8'	0	200	200

ESC _

Sets or cancels overscore printing. (IBM)

ASCII Code	ESC _ n
Hexadecimal Value	X'1B' X'5F' n
Decimal Value	27 95 n

Enables or disables overscore printing. See the following table:

n	Overscore Printing
1	Enabled (all spaces and characters that follow are overscored)
0	Disabled

ESC 4

Sets italics printing mode. (EPSON)

ASCII Code	ESC 4
Hexadecimal Value	X'1B' X'34'
Decimal Value	27 52

Sets the style attribute of the font to italic. This command selects italic printing even if the italic character table is not selected.

ESC 5

Cancels italics printing. (EPSON)

ASCII Code	ESC 5
Hexadecimal Value	X'1B' X'35'
Decimal Value	27 53

Sets the style attribute of the font to normal (cancels the italic style attribute previously selected with the ESC 4 command).

ESC a

Sets Letter Quality justification printing. (EPSON)

ASCII Code	ESC a n
Hexadecimal Value	X'1B' X'61' n
Decimal Value	27 97 n
Range	0 = n = 3

Selects from four types of justification, as follows:

n	Justification
0	Left
1	Centered
2	Right
3	Allows an uniform printing between the margins when the buffer is full.

ESC E

Sets emphasized printing (IBM/EPSON).

ASCII Code	ESC E
Hexadecimal Value	X'1B' X'45'
Decimal Value	27 69

This command starts emphasized printing. The print head strikes each dot twice to produce a darker, bolder character. The second strike is offset horizontally.

ESC F

Cancels emphasized printing (IBM/EPSON).

ASCII Code	SC F
Hexadecimal Value	X'1B' X'46'
Decimal Value	27 70

This command ends emphasized printing. This escape sequence cancels emphasized printing that was started by ESC E.

ESC G

Sets double strike printing (IBM/EPSON).

ASCII Code	ESC G
Hexadecimal Value	X'1B' X'47'
Decimal Value	27 71

This command starts double-strike printing. ESC G may be canceled by ESC H.

ESC g

Sets 15 CPI. (EPSON)

ASCII Code	ESC g
Hexadecimal Value	X'1B' X'67'
Decimal Value	27 103

Subsequent data is printed at 15 cpi. This command is accepted at any position within the line. If you change the pitch during proportional mode (selected with the ESC p command), the change takes effect when the printer exits proportional mode.

ESC H

Cancels double strike printing (IBM/EPSON).

ASCII Code	ESC H
Hexadecimal Value	X'1B' X'48'
Decimal Value	27 72

This command cancels double-strike printing set with the ESC G command.

ESC I

Selects printing type for resident and DLL characters. (IBM)

ASCII Code	ESC I n
Hexadecimal Value	X'1B' X'49' n
Decimal Value	27 73 n

This command selects the resident or the download font in Draft or LQ printing mode. It is ignored if you select a font that has not been downloaded or has been overwritten. See the following table:

n	Resident font	n	Download font
0	Draft 10 cpi	4	Draft 10 cpi
2	LQ10cpi	6	LQ10cpi
3	Proportional	7	Proportional
8	Draft 12 cpi	12	Draft 12 cpi
10	LQ 12 cpi	14	LQ 12 cpi
16	Draft 17 cpi	20	Draft 17 cpi
18	LQ 17 cpi	22	LQ 17 cpi

ESC M

Selects 10.5 point, 12 CPI. (EPSON)

ASCII Code	ESC M
Hexadecimal Value	X'1B' X'4D'
Decimal Value	27 77

This is a terminator code. It causes all data present in the print buffer to be printed. Subsequent data is printed at 12 cpi, if you previously set the compressed spacing by sending the SI or ESC SI command. If you select proportional printing, this command is stored.

ESC P

Selects 10.5 point, 10 cpi. (EPSON)

ASCII Code	ESC P n
Hexadecimal Value	X'1B' X'50' n
Decimal Value	27 80 n

This command selects 10.5 point, 10 cpi character printing. If you change the pitch during proportional mode (selected with the ESC p command) the change takes effect when the printer exits proportional mode.

ESC P

Sets or cancels proportional printing. (IBM)

ASCII Code	ESC P n
Hexadecimal Value	X'1B' X'50' n
Decimal Value	27 80 n
Range	1 = n = 255

This code is a terminator code. It causes all data in the print buffer to be printed. Then if the n parameter is equal to 1, the subsequent data is printed in proportional mode. If the n parameter is equal to 0, proportional mode is reset. If the any horizontal spacing command is sent to the printer when the proportional printing is set, the command is stored and activated as soon as the proportional printing is reset.

ESC p

Sets or cancels proportional printing. (EPSON)

ASCII Code	ESC p n
Hexadecimal Value	X'1B' X'70' n
Decimal Value	27 112 n
Range	1 = n = 255

This command selects the proportional or fixed spacing according to the following values:

n	**Proportional Printing**
0	Returns to current fixed character pitch
1	Selects proportional character spacing

ESC S

Sets subscript or superscript printing (IBM/EPSON).

ASCII Code	ESC S n
Hexadecimal Value	X'1B' X'53' n
Decimal Value	27 83 n

Selects subscript or superscript printing. See the following table:

n	**Selection**
0	Subscript Print enabled
1	Superscript Print enabled

Proportional printing of subscript or superscript characters is performed at 2/3 of the proportional character width. Use the ESC T command to cancel subscript or superscript printing.

ESC SI

Sets 17/20 cpi (IBM).

ASCII Code	SI or ESC SI
Hexadecimal Value	X'0F' or X'1B' X'0F'
Decimal Value	15 or 27 15

This command sets horizontal spacing to 17 or 20 cpi. DC2 code cancels this mode and returns spacing to 10 characters per inch.

ESC SI

Sets compressed printing (EPSON).

ASCII Code	SI or ESC SI
Hexadecimal Value	X'0F' or X'1B' X'0F'
Decimal Value	15 or 27 15

This command is accepted at any position within the line. The setting of this command depends on the horizontal spacing previously set:

10 CPI	17 CPI
12 CPI	20 CPI
Proportional	½ width

The DC2 code cancels the compressed printing.

ESC SO

Sets double width printing (one line) (IBM/EPSON).

ASCII Code	SO or ESC S0
Hexadecimal Value	X'0E' or X'1B' X'0E'
Decimal Value	14 or 27 14

This code causes subsequent data in the same line to be printed as double width characters. It is canceled by the CR, LF, VT, FF and DC4 codes or when the buffer is full.

ESC s

Sets and resets Quiet printing. (EPSON)

ASCII Code	ESC s n
Hexadecimal Value	X'1B' X'73' n
Decimal Value	27 115 n

This command controls print speed as follows:

n	**Selection**
0	Normal speed printing
1	Quiet speed printing

ESC T

Cancels subscript or superscript printing (IBM/EPSON).

ASCII Code ESC T
Hexadecimal Value X'1B' X'54'
Decimal Value 27 84

This command cancels subscript or superscript printing started with the ESC S command.

ESC W

Sets or cancels double width printing (IBM/EPSON).

ASCII Code	ESC W n
Hexadecimal Value	X'1B' X'57' n
Decimal Value	27 87 n
Range	0 = n = 1

Enables or disables double width printing. See the following table:

n	Selection
0	Double Width Printing disabled
1	Double Width Printing enabled

ESC w

Sets or cancels double height printing. (EPSON)

ASCII Code	ESC w n
Hexadecimal Value	X'1B' X'77' n
Decimal Value	27 119 n
Range	0 = n = 255

Enables or disables double-height printing of all characters. The first line of a page is not doubled if the ESC w command is sent on the first line; all following lines are printed at double-height. Double-height printing overrides superscript, subscript, and condensed. Superscript, subscript, and condensed print resumes when double-height printing is canceled. See the following table:

n	Selection
0	Double Height Printing disabled
1	Double Height Printing enabled

ESC x

Selects Letter Quality or Draft. (EPSON)

ASCII Code	ESC x n
Hexadecimal Value	X'1B' X'78' n
Decimal Value	27 120 n

This command selects either LQ or Draft printing according to the following values:

n	Selection
0	Draft printing
1	Letter Quality printing

If you select proportional spacing with the ESC p command during Draft printing, the printer prints an LQ font instead. When you cancel proportional spacing with the ESC p command, the printer returns to Draft printing.

SI

Sets compressed printing. (IBM)

ASCII Code	SI
Hexadecimal Value	X'0F'
Decimal Value	15

This command sets horizontal spacing to 17 or 20 cpi. DC2 code cancels this mode and returns spacing to 10 characters per inch.

SI

Sets compressed printing. (EPSON)

ASCII Code	SI
Hexadecimal Value	X'0F'
Decimal Value	15

This command is accepted at any position within the line. DC2 code cancels compressed printing. The setting of this command depends on the horizontal spacing previously set

10 CPI .	17 CPI
12 CPI .	20 CPI
Proportional	½ widtth

DC2 code cancels compressed printing.

SO

Sets double width printing (one line) (IBM/EPSON).

ASCII Code	SO
Hexadecimal Value	X'0E'
Decimal Value	14

This code causes subsequent data in the same line to be printed as double width characters. It is cancelled by the CR, LF, VT, FF and DC4 codes or when the buffer is full.

Character Set

ESC [T

Selects a Code page (IBM).

ASCII Code	ESC [T 4000HcLc
Hexadecimal Value	X'1B' X'5B' X'54' 04000000HcLc
Decimal Value	7 91 84 4000HcLc

This sequence allows you to change the current code page. If an unavailable code page is specified, this command is ignored. The digits 04000000(hexadecimal) and 4000(decimal) are constant. To calculate Hc Lc for a code page that is not shown: If your code page has an alphabetic character, such as 437G, add 10,000 to the code page number, then divide by 256.

- The whole number result is the Hc value
- The remainder is the Lc value.

Hc	Lc		Hc	Lc		Hc	Lc		Hc	Lc	
1	181	CP437	3	96	CP864	33	143	8859/1	4	229	CP1253
3	122	CP437G	3	97	CP865	33	144	8859/2	4	230	CP1254
33	129	CP437 Slavic	3	98	CP866	33	145	8859/3	4	231	CP1255
33	82	CP850	3	99	CP867	33	146	8859/4	4	232	CP1256
3	83	CP851	3	108	CP876	33	147	8859/5	4	233	CP1257
3	84	CP852	3	109	CP877	33	148	8859/6	33	130	FARSI 1
3	85	CP853	4	74	CP1098	33	149	8859/7	33	131	FARSI 2
3	87	CP855	33	123	96 GREEK	33	150	8859/8			
3	89	CP857	33	124	GOST	33	151	8859/9			
3	90	CP858	33	125	TASS	3	155	8859/15			
3	92	CP860	33	126	MAZOWIA	4	226	CP1250			
3	94	CP862	33	128	UKRANIAN	4	227	CP1251			
3	95	CP863	33	138	KOI8-U	4	228	CP1252			

ESC \

Prints characters from all characters table. (IBM)

ASCII Code	ESC \ n1 n2
Hexadecimal Value	X'1B' X'5C' n1 n2
Decimal Value	27 92 n1 n2
Range	0 = n1 = 255
	0 = n2 = 255

This command prints the next n1 + n2 x 256 characters from the table of all printable characters.

The total number of characters that will be printed from the table of all printable characters is equal to n1 + (n2 x 256). For example, to print 300 characters from the table of all printable characters: n1 = 44, n2 =1.

The control codes are not recognized as long as this sequence is active. The space character is printed as an unassigned character.

ESC ^

Prints a single character from the all characters table. (IBM)

ASCII Code	ESC ^ n
Hexadecimal Value	X'1B' X'5E' n
Decimal Value	27 94 n
Range	0 = n = 255

This command prints the next character from the all characters table. This sequence prints only one character from the all character table.

ESC 6

Selects the Character Set 2 (EPSON, IBM).

ASCII Code	ESC 6
Hexadecimal Value	X'1B' X'36'
Decimal Value	27 54

This command selects the character set 2.

ESC 7

Selects the Character Set 1 (IBM).

ASCII Code	ESC 7
Hexadecimal Value	X'1B' X'37'
Decimal Value	27 55

This command selects the character set 1.

ESC k

Selects the LQ fonts. (EPSON)

ASCII Code	ESC k n
Hexadecimal Value	X'1B' X'6B' n
Decimal Value	27 107 n

Selects one of the available fonts in Letter Quality. If Draft mode is selected when this command is sent, the new LQ font is selected when the printer returns to LQ printing.

n	Types	n	Types	n	Types	n	Types	n	Types
1	Gothic	2	Courier	3	Prestige	4	Script	5	OCR-B
6	OCR-A	7	Presentor	11	Boldface Prop.	181	Block Char.		

Boldface available if the Command ESC p1 (proportional) is sent.

ESC R

Selects Nation character set. (EPSON)

ASCII Code	ESC R n
Hexadecimal Value	X'1B' X'52' n
Decimal Value	27 82 n

Range 0 = n = 13

This code causes the national character set to be selected according to the parameter n. See the following table:

n	National Character Sets	n	National Character Sets	n	National Character Sets
0	USA	5	Sweden	10	Denmark-II
1	France	6	Italy	11	Spain-II
2	Germany	7	Spain-I	12	Latin America
3	United Kingdom	8	Japan		
4	Denmark-I	9	Norway		

ESC t

Selects characters table. (EPSON)

ASCII Code ESC t n
Hexadecimal Value X'1B' X'74' n
Decimal Value 27 116 n
Range 0 = n = 3

Selects the upper half (from 128 to 255) from the character table.

n	Character Tables
0	Standard Italic Character Set
1	ASCII Character Set
2	Remaps DLL Character Set from position 0-127 to 128-255

Download Character

ESC %

Selects user-defined character set. (EPSON)

ASCII Code ESC & n
Hexadecimal Value X'1B' X'25' n
Decimal Value 27 37 n

This command switches between normal (resident) and user-defined (downloaded) characters:

n	Selection
1	Selects the use of downloaded character set in RAM
0	Selects the use of resident character set in ROM

ESC &

Defines the 24-pin download characters. (EPSON)

ASCII Code ESC & NUL n m a0 a1 a2 d1 ... dx
Hexadecimal Value X'1B' X'26' 00 n m a0 a1 a2 d1 ... dx
Decimal Value 27 38 00 n m a0 a1 a2 d1 ... dx
Range 0 = n= 127
0 = m= 127
0<= dx < = 255
a0 a1 a2: see below

This escape sequence is used to download fonts to the printer. Once fonts have been downloaded, they can be selected by ESC % n.

Parameter nis the character position of the first character and parameter mis the character position of the last character to be downloaded. For example, to download character “RST” the user would specify n=52H and m=54H. Characters must be downloaded to consecutive positions after the first character. The parameters a0, a1, and a2 must be sent for each character being downloaded and are known as the attribute bytes. Parameter a0 specifies the number of dot columns to be added before the character.

Parameter a1 specifies the width of the character. Parameter a2 specifies the number of dot columns to add after the character. The parameters d1 ... dx represent the dot column data being downloaded for each character. 2 or 3 data bytes represent 1 column of dots depending upon the print mode type as shown below. Draft, Letter Quality, superscript, and subscript fonts can be downloaded. It is necessary to select the desired print mode prior to sending the download data. Each dot column has a width of 1/120" in Draft and 1/360 in Letter Quality. Following are limits of parameters a0, a1, and a2 for LQ Draft and Super/Subscript print mode at various character pitches.

			LQ			**DRAFT**	
	10 cpi	**12 cpi**	**15 cpi**	**Prop**	**Script**	**Norm**	**Script**
a1	29	23	15	39	23	9	7
a0 + a1 + a2	36	30	24	42	36	12	12

The mapping of data bits to wires is as follows:

BYTE #	**BIT #**	**LQ WIRE #**	**DRAFT WIRE #**	**SUBSCRIPT WIRE #**	**SUBSCRIPT WIRE #**
1	7	1	1	1	9
	6	2	2	2	10
	5	3	3	3	11
	4	4	4	4	12
	3	5	5	5	13
	2	6	6	6	14
	1	7	7	7	15
	0	8	8	8	16
2	7	9	9	9	17
	6	10	10	10	18
	5	11	11	11	19
	4	12	12	12	20
	3	13	13	13	21
	2	14	14	14	22
	1	15	15	15	23
	0	16	16	16	24
3	7	17	17		
	6	18	18		
	5	19	19		
	4	20	20		
	3	21	21		
	2	22	22		
	1	23	23		
	0	24	24		

Note: Only 2 Bytes are required for superscript/subscript characters.

If a data bit has a value of 1, the corresponding wire is fired. If a data bit has a value of 0, the wire is not fired. In general, the user of this feature must be careful that the number of bytes of downloaded information is equal to 3 x width of the character being defined (a1) or the results will be unpredictable. Only one print mode type may be downloaded at a time. That is, if draft characters have been

downloaded, then selecting Letter Quality and downloading characters will cause the draft download characters to be cleared. This applies similarly to script characters.

ESC :

Copies characters from ROM to RAM. (EPSON)

ASCII Code ESC : NULn0
Hexadecimal Value X'1B' X'3A' 00n00
Decimal Value 27 58 n0

This code copies the draft character generator in ROM into RAM area dedicated to the user-defined characters. Also Courier or Gothic character generator font from ROM is copied to RAM memory according to the following values of n parameter:

n	Selection	n	Selection	n	Selection
1	Gothic	2	Courier	4	Script
5	OCR-B	6	OCR-A	182	DLL

ESC =

Defines downloaded characters. (IBM)

ASCII Code ESC = n m id p [a1 a2 d1 … d 11]
Hexadecimal Value 1B 3D n m id p [a1 a2 d1 … d 11]
Decimal Value 27 61 n m id p [a1 a2 d1 … d 11]
This sequence allows to design and then down-line load special characters not present in the character set in use. Whenever you would like to start the DLL setting procedure, it should be better to copy the character generator in ROM into RAM by sending the ESC = {0} {0} sequence that causes the DLL to be reset. Up to 256 characters can be defined using the DLL function.

The parameters in the command line have the following meaning:

n and m Indicate how many characters you should down-line load. n and m are calculated as follows:
{number of characters x 13}+2 = {total}
If {total} is less than {256}
{n} = {t}
{m} = {0}
If {total} is greater than {256}
{n} = {remainder of {t} divided by 256}
{m} = {integer result of {t} divided by 256}
id Indicates the printer model. In this case it is fixed to {20}.

Each DLL character is described using the following parameters:

p This is the decimal code of the first character of the character set in use that should be replaced by the DLL character.
a1 This is the first attribute byte and it has the following meaning:
Bit 7: {0} indicates that the character is not a true descender.
{1} indicates that the character is a true descender.
This bit is ignored if bit 0 or bit 1 is set to 1.
Bit 6 to 2 Ignored
Bit 1, 0 Character description:
{00} no 12-high expansion. The bit 7 is valid.
{01} line drawing character. The dots in row 8 are extended

downward to rows 9, 10, 11 and 12. The bit 7 is ignored. It is advisable to use this mode to create characters that should replace 179 to 223 code characters.

{11} shading characters. The dots in row 1, 2, 3 and 4 are repeated as rows 9, 10, 11 and 12. The Quality printing is ignored. It is advisable to use this mode to create characters that should replace 176 to 178 code characters.

a2 This is the second attribute byte. It specifies the proportional printing information. If you do not wish to define a proportional character, set the bit 6 – 0 to {0}. When you use the proportional printing for a DLL character with bit 6 – 0 set to {0}, the databytes of the character will be printed.

Bit 7:	Ignored
Bit 6, 5, 4	Interpreted as binary number. These bits specify the number of leading bytes that should be ignored. This number is the offset. Up to 7 bytes can be ignored. The counts begins with byte 1.
Bit 3 to 0	Interpreted as binary number. These bits specify the number of dots-columns that should be printed. Each character must be followed by a blank byte that is not included in the count of the character width. Character widths greater than 11 are treated as 11.

Bit-Image

ESC *

Sets dot graphics printing. (EPSON, IBMXL24, IBMXL24 AGM)

ASCII Code	ESC * m n1 n2 p1 p2 ... px
Hexadecimal Value	X'1B' X'2A' m n1 n2 p1 p2 ... px
Decimal Value	27 42 m n1 n2 p1 p2 ... px
Range	m = 0,1,2,3,4,5,6,7; 0 < n1 < 255; 0 < n2 < 31

This command prints dot-graphics in 8-dot columns, depending on the following parameters: number of dot columns = (n1 + (n2 x 256))

Selects 8-dot graphic or 24-dot graphic modes according to the table below.
The m parameter determinates the horizontal density as well as the number of wires to be fired.
For 8-dot images, the total number of data bytes (p) to be sent is determined by the following formula: n1+ n2 x 256.

m	DPI	# DOTS	DENSITY NAME	Other ESC
0	60	8	Normal density	ESC K
1	120	8	Dual density	ESC L
2	120 (virtual)	8	Double speed, Dual density	ESC Y
3	240 (virtual)	8	Quadruple-density	ESC Z
4	80	8	CTR Graphic I	
6	90	8	CTR Graphic II	

For 24-dot images, the total number of data bytes (px) to be sent is determined by the following formula: 3.x.(n1+ n2 x256).

m	DPI	# DOTS	DENSITY NAME
32	60	24	Normal density
33	120	24	Double density
38	90	24	CRT Graphic III
39	180	24	Triple-density
40	360 (virtual)	24	Hex-density

ESC ?

Reassigns dot graphics mode. (EPSON)

ASCII Code	ESC ? nm
Hexadecimal Value	X'1B' X'3F' nm
Decimal Value	27 63 nm

Reassigns one of the dot graphics mode (described in the command ESC *) to one of the following commands: ESC K, ESC L, ESC Y and ESC Z. The nparameter specifies a character (K, L, Y, or Z) which is reassigned to specific mode m= 0,1,2,3.

m	n	m	n
0	(K): ESC K graphic command	2	(Y): ESC Y graphic command
1	(L): ESC L graphic command	3	(Z): ESC Z graphic command

ESC K

Normal density dot graphics printing (60 dpi) (IBM/EPSON).

ASCII Code	ESC K n1 n2 p1 p2 ... px
Hexadecimal Value	X'1B' X'4B' n1 n2 p1 p2 ... px
Decimal Value	27 75 n1 n2 p1 p2 ... px
Range	0 = n1 = 255
	0 = n2 = 31
	0 = p= 255

Terminator code. This command prints dot graphics at 60 horizontal dots per inch (dpi) by 180 vertical dpi. The parameter values are calculated as follows:

n1	Remainder of the number of columns divided by 256.
n2	Integer result of the previous division.
p1	Sum of the values corresponding to the dots that should be printed in the first column of the graphics pattern.
p2	Sum of the values corresponding to the dots that should be printed in the second column of the graphics pattern.
px	Sum of the values corresponding to the dots that should be printed in the last column of the graphics pattern.

ESC L

Double density dot graphics printing (120 dpi) (IBM/EPSON).

ASCII Code	ESC L n1 n2 p1 p2 ... px
Hexadecimal Value	X'1B' X'4C' n1 n2 p1 p2 ... px

Decimal Value	27 76 n1 n2 p1 p2 ... px
Range	0 = n1 = 255
	0 = n2 = 31
	0 = p = 255

Terminator code. This command prints dot graphics at 120 horizontal dpi by 180 vertical dpi.
The parameter values should be calculated as follows:

n1 Remainder of the number of columns divided by 256.
n2 Integer result of the previous division.
p1 Sum of the values corresponding to the dots that should be printed in the first column of the graphics pattern.
p2 Sum of the values corresponding to the dots that should be printed in the second column of the graphics pattern.
px Sum of the values corresponding to the dots that should be printed in the last column of the graphics pattern.

ESC Y

Double density dot graphics printing at double-speed graphics (120 virtual dpi) (IBM/EPSON).

ASCII Code	ESC Y n1 n2 p1 p2 ... px
Hexadecimal Value	X'1B' X'59' n1 n2 p1 p2 ... px
Decimal Value	27 89 n1 n2 p1 p2 ... px
Range	0 = n1 = 255
	0 = n2 = 31
	0 = p = 255

Terminator code. This command prints dot graphics at 120 horizontal dpi by 180 vertical dpi.
The parameter values should be calculated as follows:

n1 Remainder of the number of columns divided by 256.
n2 Integer result of the previous division.
p1 Sum of the values corresponding to the dots that should be printed in the first column of the graphics pattern.
p2 Sum of the values corresponding to the dots that should be printed in the second column of the graphics pattern.
px Sum of the values corresponding to the dots that should be printed in the last column of the graphics pattern.

ESC Z

Quadruple density dot graphics printing (240 virtual dpi) (IBM/EPSON).

ASCII Code	ESC Z n1 n2 p1 p2 ... px
Hexadecimal Value	X'1B' X'5A' n1 n2 p1 p2 ... px
Decimal Value	27 90 n1 n2 p1 p2 ... px
Range	0 = n1 = 255
	0 = n2 = 31
	0 = p = 255

Terminator code. This command prints dot graphics at 240 horizontal dot per inch by 180 vertical dpi.
The parameter values should be calculated as follows:

n1 Remainder of the number of columns divided by 256.

n2 Integer result of the previous division.
p1 Sum of the values corresponding to the dots that should be printed in the first column of the graphics pattern.
p2 Sum of the values corresponding to the dots that should be printed in the second column of the graphics pattern.

ESC [g

Selects 8 or 24 needle dot graphics mode. (IBM)

ASCII Code	ESC [g l h m n 1 ... nk
Hexadecimal Value	X'1B' X'5B' X'67' l h m n 1 ... nk
Decimal Value	27 91 103 l h m n 1 ... nk

This command selects dot graphics in 8 or 24 needle configuration. h*256+l represents the number of data + l. The m parameter represents the dot graphics modes as shown in the following table:

m	DENSITY	NEEDLE	FUNCTION
0	60	8	Same as ESC K (8 needles)
1	120	8	Same as ESC L (8 needles)
2	120	8	Same as ESC Y (8 needles)
3	240	8	Same as ESC Z (8 needles)
8	60	24	Same as ESC * (32)
9	120	24	Same as ESC * (33)
11	240	24	Same as ESC * (39)
12	360	24	Same as ESC * (40)

The n1, n2 up to nk parameters are dot graphics data. If you select the 8 needle dot graphics mode, one byte of data is needed for each column so that the formula h*256+l = number of columns + l is valid. If you select the 24 needle dot graphics mode, three bytes of data is needed for each column so that the formula h*256+l = number of columns *3-l is valid.

Data Input Control

CAN

Cancels line. (EPSON)

ASCII Code	CAN
Hexadecimal Value	X'18'
Decimal Value	24

This code clears all printable characters and bit-image graphics on the current line. This code moves the print position to the left-margin position.

CAN

Cancels data. (IBM)

ASCII Code	CAN
Hexadecimal Value	X'18'
Decimal Value	24

This code clears all data stored in the preceding print buffer but does not change the current print position.

DC1

Selects printer. (IBM)

ASCII Code	DC1
Hexadecimal Value	X'11'
Decimal Value	17

This command causes the printer to be enabled after it has been disabled by the ESC Q command.

DC1

Selects printer. (EPSON)

ASCII Code	DC1
Hexadecimal Value	X'11'
Decimal Value	17

This command causes the printer to be enabled after it has been disabled by the DC3 command.

DC3

Deselects printer. (EPSON)

ASCII Code	DC3
Hexadecimal Value	X'13'
Decimal Value	19

This code deselects the printer. The printer remains deselected until it receives a DC1 command or power is turned off then on again. The printer ignores the ESC @ command (initialize printer) when it is deselected.

DEL

Deletes the last character. (EPSON)

ASCII Code	DEL
Hexadecimal Value	X'7F'
Decimal Value	127

This command causes the printer to delete the last printable character sent to the printer. Printer control codes are not affected. The printer ignores this command if it follows a command that moves the horizontal print position (ESC $, ESC \, or HT).

ESC

Cancels MSB control. (EPSON)

ASCII Code	ESC #
Hexadecimal Value	X'1B' X'23'
Decimal Value	27 35

This command cancels any controls on the Most Significant Bit (MSB) (bit number 7) set by ESC = or ESC > commands. The printer then accepts all MSB data as is.

ESC =

Sets MSB to 0. (EPSON)

ASCII Code	ESC =
Hexadecimal Value	X'1B' X'3D'
Decimal Value	27 61

This command sets the MSB (bit number 7) of all incoming data to 0. All data is affected, including graphics data.

ESC >

Sets MSB to 1. (EPSON)

ASCII Code	ESC >
Hexadecimal Value	X'1B' X'3E'
Decimal Value	27 62

This command sets the MSB (bit number 7) of all incoming data to 1. All data is affected, including graphics data.

ESC Q

Deselects Printer. (IBM)

ASCII Code	ESC Q n
Hexadecimal Value	X'1B' X'51' n
Decimal Value	27 81 n

This sequence tells the printer not to accept data from the host. The host must reset the printer or select the printer by using DC1 (Select Printer) to accept data. To deselect the printer, use ESC Q35.

Miscellaneous

BEL

Buzzer (IBM/EPSON).

ASCII Code	BEL
Hexadecimal Value	X'07'
Decimal Value	7

This code sounds the printer buzzer.

BS

Print and space back one position (IBM/EPSON).

ASCII Code	BS
Hexadecimal Value	X'08'
Decimal Value	8

This code causes printing to be continued from one column to the left of the current carriage position. The printer ignores this command if it would move the print position to the left of the left margin.

ESC @

Initializes the printer. (EPSON)

ASCII Code	ESC @
Hexadecimal Value	X'1B' X'40'
Decimal Value	27 64

This sequence causes the printer:

- To go back to the current printer setup settings
- To cancel any selected print attributes
- To reset the column counter
- To set the horizontal tabulations every 8 columns
- To clear all vertical tabulations

Only the selection of the Draft or Quality printing DLL, and the selected character generator are maintained.

ESC [K

Sets initial conditions. (IBM 2391 + only)

ASCII Code
ESC [K n1 n2 init id

Hexadecimal Value X'1B' X'5B' X'4B' n1 n2 init id

Decimal Value
27 91 75 n1 n2 init id

This command causes the printer to reset to its initial status:

n1, n2 The n1 and n2 parameters specify the number of bytes in the escape sequence normally, n1 = 2 and n2 = always 0.

init The init parameter specifies which condition the printer should be initialized: normally init = 0,1,4,5,254,255.

init	Description
0	Initializes the printer to user-default settings. The download font remains unchanged. If parameters are specified, they overwrite the default settings. If the emulation mode is changed, the download font is initialized. This command only copies data from the selected macro, adds parameter changes, if any, and stores it in working RAM. The data stored in the macro's nonvolatile RAM is not affected.
1	Initializes the printer to user-default settings. The download font is initialized. If parameters are specified, they overwrite the default settings. This command only copies data from the selected macro, adds parameter changes, if any, and stores it in working RAM. The data stored in the macro's nonvolatile RAM is not affected.
4	Initializes the printer to factory settings. The download font remains unchanged. If parameters are specified, they overwrite the default settings. If the emulation mode is changed, the download font is initialized. This command only copies the default settings from ROM, adds parameter changes, if any, and stores it in working RAM. The data stored in the macro's nonvolatile RAM is not affected.

5 Initializes the printer to factory settings. The download font is initialized. If parameters are specified, they overwrite the default settings. This command only copies the default settings from ROM, adds parameter changes, if any, and stores it in working RAM. The data stored in the macro's nonvolatile RAM is not affected.

254 Initializes the printer to user-default settings. The download font is initialized. If parameters are specified, they overwrite the default settings.
This command changes the data stored in the selected macro. It copies data from the selected macro, adds parameter changes, if any, and stores it in working RAM and in the selected macro. It also changes the default macro to the value of parm 3.

255 Initializes the printer to default settings. The download font is initialized. If parameters are specified, they overwrite the default settings. This command changes the data stored in the macro's nonvolatile RAM. It copies default settings from ROM, adds parameter changes, if any, and stores it in working RAM and all macros. It also sets the default macro to
disable.

id The id parameter specifies the printer for which the following parameter bytes are intended. If the ID does not address your printer, the mode bytes that follow are ignored. The ID values are Hex = X'B6', Dec = 182.

parm1 Specifies the following functions:

	Bit	Not set	Set
7	Discard byte	Process this byte	Ignore this byte
6	Reserved		
5	Alarm	Alarm enabled	Alarm disabled
4	Automatic CR	No CR on vertical movement	CR on vertical movement
3	Automatic LF	No LF after CR	LF after CR
2	Page length	11 inches	12 inches
1	Slashed zero	Zero without	slash Zero with slash
0	Character set	CS1	CS2

parm2 Specifies the following functions:

	Bit	Not set	Set
7	Discard byte	Process this byte	Ignore this byte
6	Pass over from CP437-CP850	CP437	CP850
5	Reserved		
4	Reserved		
3	Reserved		
2	Reserved		
1	Line length	13.6 inch	8 inch
0	Reserved		

Only the selection of the Draft or Quality printing DLL, and the selected character generator are maintained.

ESC j

Stops printing. (IBM)

ASCII Code	ESC j n
Hexadecimal Value	X'1B' X'6A' n
Decimal Value	27 106 n

This command stops the printer. The printer goes offline and a BUSY signal is sent to the computer. To

place the printer online, press the ON LINE key.

ESC U

Sets printing direction (IBM/Epson).

ASCII Code	ESC U n
Hexadecimal Value	X'1B' X'55' n
Decimal Value	27 85 n

Selects bidirectional or unidirectional printing according to the parameters below:

n	Direction
0	Bidirectional printing
1	Unidirectional (left to right) printing

Unidirectional printing provides better alignment of vertical lines while bidirectional printing is faster.

ESC [u n

Bar Codes selection. (IBM -Epson)

ASCII Code	ESC [u n
Hexadecimal Value	X'1B' X'5B' X'75' n
Decimal Value	27 91 117 n

This command is recognized only if the Bar Code menu option is set to “Alternate” mode.

n	
0	Exit Bar Code mode
1	Enter Bar Code mode. Subsequent data are barcode data strings as set by ESC [v n

ESC [v n m

Sets Barcode parameters. (IBM -Epson)

ASCII Code	ESC [vnm
Hexadecimal Value	X'1B' X'5B' X'76' nm
Decimal Value	27 91 118 nm

Set barcode parameters according to the table below. Parameter values that are not supported result in the command being ignored.

n	Parameter Description	m values	m default
0	Barcode style	see below table	4
1	Barcode height	1-120 (1/12" increments)	12
2	Human readable line	0=disable 1=enable	1
3	Narrow bar width	2-225	3
4	Wide bar width	2-225	7
5	Narrow space width	2-225	3
6	Wide space width	2-225	7
7	Intercharacter space width	2-225	3
8	Rotation and HRC font	0.1=no rotation and current font for HRC 2=90 3=180 4=270 and special HRC font	0

9	Horizontal print density	1=120 2=144 3=180 dpi	1
10	Check digit	0=disable 1=enable	0
11	HRC font for rotate barcode	3=OCRA 4=OCRB	3
12	Barcode height	0-240 (1/24" increments)	24

Supported Bar Code Styles

m	**Style**
0	Interleaved 2 of 5
1	Bidirectional 2 of 5
2	Matrix 2 of 5
3	Industrial 2 of 5

Supported Bar Code Styles

m	**Style**
4	Code 3 of 9 (default)
5	EAN-8
6	EAN-13
7	Code 11
9	Codabar (default start/stop = a/t)
10	Codabar (default start/stop = b/n)
11	Codabar (default start/stop = c/*)
12	Codabar (default start/stop = d/e)
13	UPC-A
14	UPS-E
15	Code 93
16	Code 128 (subset A, B, and C)
17	Code 128 (subset A, B, and C)
18	Code 128 (subset A, B, and C)
19	MSI
20	UPC 2 Supplemental
21	UPC 5 Supplemental
22	EAN 2 Supplemental
23	EAN 5 Supplemental
50	Postnet

Chapter 2. Native Emulation Commands

The printer in the Native Mode supports the following printer commands.

Format Control

DC4 DC4 ESC 1

Sets vertical spacing n/180 inch.

ASCII Code	DC4 DC4 ESC 1 n
Hexadecimal Value	X'14' X'14' X'1B' X'31' n
Decimal Value	20 20 27 49 n
Range	0 = n = 255

This command sets vertical spacing to n/180 inch for subsequent line feeds.

DC4 DC4 ESC 3 1

Sets vertical spacing 12 lines/30 mm.

ASCII Code	DC4 DC4 ESC 3 1
Hexadecimal Value	X'14' X'14' X'1B' X'33' X'31'
Decimal Value	20 20 27 51 49

This command sets vertical spacing to 12 lines per 30 mm.

DC4 DC4 ESC 3 3

Sets vertical spacing to 3 lines/30 mm.

ASCII Code	DC4 DC4 ESC 3 3
Hexadecimal Value	X'14' X'14' X'1B' X'33' X'33'
Decimal Value	20 20 27 51 51

This command sets vertical spacing to 3 lines per 30 mm.

DC4 DC4 ESC 3 4

Sets vertical spacing 4 lines/30 mm.

ASCII Code	DC4 DC4 ESC 3 4
Hexadecimal Value	X'14' X'14' X'1B' X'33' X'34'
Decimal Value	20 20 27 51 52

This command sets vertical spacing to 4 lines per 30 mm.

DC4 DC4 ESC 3 6

Sets vertical spacing 6 lines/30 mm.

ASCII Code	DC4 DC4 ESC 3 6
Hexadecimal Value	X'14' X'14' X'1B' X'33' X'36'
Decimal Value	20 20 27 51 54

This command sets vertical spacing to 6 lines per 30 mm.

DC4 DC4 ESC 3 8

Sets vertical spacing 8 lines/30 mm.

ASCII Code	DC4 DC4 ESC 3 8
Hexadecimal Value	X'14' X'14' X'1B' X'33' X'38'
Decimal Value	20 20 27 51 56

This command sets vertical spacing to 8 lines per 30 mm.

DC4 DC4 ESC A

Sets the horizontal spacing to 15, 17.1, 20,24 CPI.

ASCII Code	DC4 DC4 ESC A n
Hexadecimal Value	X'14' X'14' X'1B' X'41' n
Decimal Value	20 20 27 65 n

This is terminator code and causes the current contents of the print buffer to be printed. The subsequent characters are printed at the horizontal spacing specified by the n parameter.

n	**Spacing**
4	15 cpi
5	17 cpi
6	20 cpi
7	24 cpi

Native Character Set

DC4 DC4 ESC g

Selects LQ fonts.

ASCII Code	DC4 DC4 ESC g n
Hexadecimal Value	X'14' X'14' X'1B' X'67' n
Decimal Value	20 20 27 103 n
Range	0 = n = 255

If down-line loading is selected, the command is stored and activated as soon as the down-line loading is canceled.

Boldface is available if the ESC p1 (proportional) is sent.

n	Types	n	Types	n	Types	n	Types
1	Gothic	2	Courier	3	Prestige	4	Script
5	OCR-B	6	OCR-A	7	Presentor	11	Boldface Prop.
182	DLL						

The OCR-A and OCR-B print styles are selected by the DC4 DC4 ESC S command.

DC4 DC4 ESC S

Selects character set ISO Character Sets or Code Pages.

ASCII Code	DC4 DC4 ESC S n
Hexadecimal Value	X'14' X'14' X'1B' X'53' n
Decimal Value	20 20 27 83 n

n	Types	n	Types
1	ISO 8859/1 Latin 1	137	CP 852 Eastern Europe
2	ISO 8859/2 Latin 2	138	CP 876 OCR-A
3	ISO 8859/3 Latin 3	139	CP 877 OCR-B
4	ISO 8859/4 Latin 4	140	CP 855 Cyrillic
5	ISO 8859/5 Latin/Cyrillic	141	CP 866 Russian
6	ISO 8859/6 Latin/Arabic	142	GOST Cyrillic
7	ISO 8859/7 Latin/Greek	145	CP 437G Greek
8	ISO 8859/8 Latin/Hebrew	146	CP 853 Turkish
9	ISO 8859/9 Latin 5	147	CP 857 Turkish
15	ISO 8859/15 Latin 9	148	CP 867 Turkish
128	CP 437 USA	149	CP 858 Euro PC Multilingual
129	CP 850 Multilingual	199	96 Greek
130	CP 860 Portugal	200	CP 1250
131	CP 863 Canada/France	201	MAZOWIA
132	CP 865 Denmark/Norway	202	CP 1251
133	CP 851 Greek	203	CP 1252
134	CP 862 Hebrew		
135	CP 864 Arab		
136	TASS Cyrillic		

DC4 DC4 ESC p

Selects printing style type.

ASCII Code	DC4 DC4 ESC p n
Hexadecimal Value	X'14' X'14' X'1B' X'70' n
Decimal Value	20 20 27 112 n

n	Setting
0	HS Draft
1	Best Draft
2	Normal Draft
3	NLQ
4	LQ
5	DLL

Bar Codes

DC4 DC4 ESC !

Bar Code Selection.

ASCII Code	DC4 DC4 ESC ! htfFroqbsBSiEM
Hexadecimal Value	X'14' X'14' X'1B' X'21' ! htfFroqbsBSiEM
Decimal Value	20 20 27 33 ! htfFroqbsBSiEM

This command is recognized only if the menu option “BAR CODE” is set to “NATIVE” mode.
h = Bar Code Height at n/6”, 1 < h < 30
t = Standard Bar Code to use

t	Name	
1	8-digits European Article Numbering	EAN-8
2	13-digits European Article Numbering	EAN-13
3	Universal Product Code Type A	UPC-A
4	Universal Product Code Type E	UPC-E
5	UPC/EAN 2 Digit Supplement	UPC-EAN 2
6	UPC/EAN 5 Digit Supplement	UPC-EAN 5
7, 8, 9	8-digits European Article Numbering	EAN-8
10	General Purpose Bar Code	Code-GP
11	Code 2 of 5 3-BAR (Data Logic)	C25-3BAR
12	Binary Coded Decimal	CODE BCD
13	MSI-Plessey	MSI
14	AIM-USD-8 / Code-11	Code 11
15	AIM-USD-7 / Code-93	Code 93
16	Code 2 of 5 Bidirectional	C25-BID
17	Code 2 of 5 Interleaved	C25-INT
18	Code 2 of 5 Industrial	C25-IND
19	Code 2 of 5 Matrix	C25-MTX
20	Code 3 of 9	Code-39
21	8-digits European Article Numbering	EAN-8
22	Codabar (all types)	CODABAR
23	Code 128	CODE-128
24	USPS-PostNet	POSTNET

f = Readable character printing
f = 1 printing enabled
f = 0 printing disabled
F = Font selection for the printable characters

F	Selection
0	Selected font by r value
1	Default font for text
1	Special font for OCR-A o OCR-B bar codes according to the t value
3	Special font for OCR-A bar codes
4	Special font for OCR-B bar codes

r = Bar code rotation

r	Selection
0	No rotation
1	Rotation at 0°

2 Rotation at 90°
3 Rotation at 180°
4 Rotation at 270°

o = A check digit is inserted as the last character of the received string according to the bar code

q = The horizontal graphic density of the bar code

q	Selection
0	1/120"
1	1/180"

b = Narrow bar width in n/180", 3 < b <18
s = Narrow space width in n/180", 3 < s <18
B = Wide bar width in n/180", 6 < B <72
S = Wide space width in n/180", 6 < S <72
i = Spacing between characters in n/180", 3 < i <72

EM = Check sequence terminator

Bar Code Description

EAN-8 **DC4 DC4 ESC ! n1pEM**

The EAN-8 bar code data field must only contain numeric data and must be eight bytes long including the check digit. The EAN-8 character repertoire provides 0 to 9 ASCII numeric figures. n indicates the bar code height in units of 1/6 inch and must be in the range 1 to 12. pmust be NUL (hex. X'00') if no Human Readable Characters are to be printed, and 1 (hex. X'01') if they are to be printed. The range of values for the nand pparameters can be increased of 32 dec.

EAN-13 **DC4 DC4 ESC ! n2pEM**

The EAN-13 bar code data field must only contain numeric data and must be 13 bytes long including the check digit. The EAN-13 character repertoire provides 0 to 9 ASCII numeric figures. n indicates the bar code height in units of 1/6 inch and must be in the range 1 to 12. If you want to print the Human Readable Characters, pmust have the value 1 (hex. X'01'); otherwise this value must be NUL (hex. X'00'). The range of values for the nand pparameters can be increased of 32 dec.

UPC-A **DC4 DC4 ESC ! n3pEM**

The UPC-A bar code data field allows 10 numeric characters plus one system number digit and one check digit at the leftmost and rightmost positions, respectively. The UPC-A character repertoire provides 0 to 9 ASCII numeric figures. nindicates the bar code height in units of 1/6 inch and must be in the range 1 to 12. pmust be NUL (hex. X'00') if no Human Readable Characters are to be printed, and 1 (hex. X'01') if they are to be printed. The range of values for the nand pparameters can be increased of 32 dec.

UPC-E **DC4 DC4 ESC ! n4pEM**

If 11-digit strings are received and the ocheck digit field is missing or takes values 0 or 2, question marks are printed in place of the HRC string, when possible. If the ofield takes a value of 1, the 12th digit is inserted by the printer as a result of the internally available algorithm applied to the received string.

If 10-digit strings are received and the ocheck-digit is missing or takes NULL value, question marks are printed in place of HRC string, if possible. If the ofield takes a value of 1, a default 0 System-Digit is automatically inserted by the printer and the 12th digit is also inserted as result of he internally available algorithm applied to the final string.
If the final UPC-A string cannot be compressed to an 8-digits string, or the received System-Digit is different than 0 or 1, question marks are printed in place of the HRC string, if possible.
The LEFT and RIGHT delimiters, System-Digit, and the Check-Digit are printed as descending bars to make a field to host a 6-digits HRC string. The System-Digit HRC to the left of the LEFT delimiter (at about the middle of the symbol) when the ffield is missing or set to 1. In this case, the Check-Digit shows in HRC to the right of the RIGHT delimiter (at about the middle of the symbol), when ofield takes values 2 or 3. Otherwise it never shows on the HRC string.

UPC-EAN 2 **DC4 DC4 ESC ! n5pEM**

The ADD ON-2 bar code data fields contain numeric data only. Otherwise question marks are printed in place of the HRC string, if possible.
If 3-digit strings are received within a DC4 DC4 ESC (... EM control sequence and the o check-digit option field is missing or takes NULL value, the symbol encodes the first 2 digits and the 3rd received digit is used as the check digit, even though this may affect its readability. If the o field takes a value of 1, the 3rd digit is matched as opposed to the internally generated check-digit. Question marks are printed in place of HRC string when mismatched, if possible.
If 2-digit strings are received and ocheck digit field is missing or takes NULL value, question marks are printed in place of the HRC string, when possible. If the ofield takes a value of 1, the check digit are computed applying the internally available algorithm to the received string in order to properly encode the symbol.
If the ffield is missing or takes a value of 1, the 2-digit HRC string is printed above the Bar/Spaces symbol and its height is part of the overall symbol's height. The check-digit never shows on the HRC string. If the ffield takes a value of 0, the symbol's encoding prints at full height.

UPC-EAN 5 **DC4 DC4 ESC ! n6pEM**

The ADD ON-5 bar code data field contains numeric data only. Otherwise question marks are printed in place of the HRC string, if possible.
If 6-digit strings are received within a DC4 DC4 ESC (... EM control sequence and ocheck-digit option field is missing or takes NULL value, the symbol encodes the first 5 digits and the 6th received digit is used as a check digit, even though this may affect its readability. If the ocheck digit option takes a value of 1, the 6th digit is matched as opposed to the internally generated check digit. Question marks are printed in place of the HRC string when mismatching, if possible.
If 5-digit strings are received and the ocheck digit field is missing or takes a NULL value, question marks are printed in place of the HRC string, if possible. If the ofield takes a value of 1, the check digit is computed applying the internally available algorithm to the received string in order to properly encode the symbol If the ffield is missing or takes a value of 1, the 5-digit HRC string is printed above the Bar/Spaces symbol and its height is part of the overall symbol's height; the check-digit never shows on the HRC string. If the ffield takes a value of 0, the symbol’s encoding prints at full height.

CODE GP **DC4 DC4 ESC ! n10pEM**

The CODE-GP bar code allows bar codes to be constructed from the two basic elements (BAR and SPACE) by sending 0,1 digits: digit 0 produces a BAR and digit 1 produces a SPACE.

These two elements may be combined in any sequence, giving the possibility of producing bars and spaces of any width that is a multiple of the basic element width. The default bar/spaces width is 1/60" (q= 0,1) but these values may be set by the user according to its specific needs. Data fields do not have a defined format length and contain 0,1 data only. Otherwise question marks are printed in place of HRC string, if possible.
No Human Readable Interpretation is possible No TEXT STRING below or above the bar/space symbol can be printed. The fand ofields are ignored.

C25-3BAR **DC4 DC4 ESC ! n11pEM**

The C25-3BAR bar code data fields do not have a defined format length and contain numeric data only. Otherwise, question marks are printed in place of the HRC string, if possible. If the ocheck digit option field takes a value of 1, an internally generated check digit complying with general 2/5 family algorithm is added to the encoded string. However, it will not show on the required HRC string.

Code BCD **DC4 DC4 ESC ! n12pEM**

The CODE-BCD bar code data fields do not have a defined format length and contain numeric data only. Otherwise question marks will be printed in place of the HRC string, if possible. No internal check digit algorithm is available for this standard. The ofield is meaningless.

MSI Plessey **DC4 DC4 ESC ! n13pEM**

The MSI bar code data fields do not have a defined format length and must contain numeric data only. Otherwise question marks are printed in place of the HRC string, if possible. To releave the host from calculating the MSI check digits, internal algorithms are provided that are accessible by the host application program, giving the proper supported value to the ocheck-digit option field, according to the following options:

0	Print the bar code symbol with no printer-generated check digits		
1	Print the bar code symbol with IBM Modulus-10 check digit -generated by the printer and put at the end of the numeric string. This is the 2nd check digit. The 1st check digit is IBM Modulus-10 also.	2	Print the bar code symbol with both check digits generated by the printer and put at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is also IBM Modulus-10.
3	Print the bar code symbol with both check digits generated by the printer and put it at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is NCR Modulus-11. If the modulus is 10, it is an error and question marks are printed in place of the HRC string, if possible.	4	Print the bar code symbol with both check digits generated by the printer and put it at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is IBM Modulus-11. If the modulus is 10, it is an error and question marks are printed in place of the HRC string, if possible.
5	Print the bar code symbol with both check digits generated by the printer and put it at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is the complement to 11 of NCR Modulus-11 algorithm applied to the received string, If the modulus is 0 or 1, the check digit is 0.	6	Print the bar code symbol with both check digits generated by the printer and put it at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is the complement to 11 of IBM Modulus-11 algorithm applied to the received string. If the modulus is 0 or 1, the check digit is 0.

7	Print the bar code symbol with both check digits generated by the printer and put at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is the complement to 11 of NCR Modulus-11 algorithm applied to the received string. If the modulus is 0 or 1, it is an error and question marks are printed in place of the HRC string, if possible.	8	Print the bar code symbol with both check digits generated by the printer and put at the end of the data. The 2nd check digit is IBM Modulus-10. The 1st check digit is the complement to 11 of IBM Modulus-11 algorithm applied to the received string. If the modulus is 0 or 1, it is an error and question marks are printed in place of the HRC string, if possible.
The printer-generated second check digit does not show on the required HRC string.			

Code 11 **DC4 DC4 ESC ! n14pEM**

The CODE-11 bar code fields do not have a defined format length and contain data belonging to the character set listed below:

0123456789

Otherwise question marks are printed in place of the HRC string, if possible.
This barcode type defines a variable WIDE/NARROW ratio. The bar code is printed at 1/180" horizontal and vertical graphical printing resolution to ensure high readability rate. Each digit encoding is separated from the next by a 1/90"—1/60" wide default Intercharacter Gap.
CODE-11 has unique a START/STOP character. The printer generates the couple related to each symbol. It is visually interpreted by an OPEN TRIANGLE and will always appear on the HRC string because its size is usually varied to signify the number of check digits being used in the particular symbol:

- SMALL open triangle means ONE check-digit
- LARGE open triangle means TWO check-digit

The ffield is meaningless and always defaults to the HRC string print.

Code 93 **DC4 DC4 ESC ! n15pEM**

The CODE-93 bar code fields do not have a defined format length and contain data belonging to the standard ASCII character set, including control codes.
Since the GS and EM control codes are used, the DC4 DC4 ESC (... EM “Print bar-code” control sequence is part of the supported character set. The host application must SET THE HIGHER-ORDER BIT of the above control codes to allow the printer to distinguish between encodable data and string terminators.
The complete ASCII standard character set is encoded using 47 combinations of 9 bar/space narrow elements arranged into 3 variable width bars with their adjacent variable width spaces. Each of the bars in the supported combinations can be 1, 2, or 3 modules wide. The START/STOP character has a 4-module wide bar. CODE-93 directly implements the basic subset as shown below:

0123456789 A BCDEFGHIJKL MNOP QRS T UVWX Y Z-.SPACES$/+%

($) (%) (/) (+) (as special control characters)

(as unique START/STOP character)

The other STANDARD-ASCII codes not presented above are represented by means of a combination of one control character in the above set followed by a symbol in the alphabetical set. The HRC string is printed BELOW the symbol when ffield is set to 1 without

check digits. Non-printable ASCII characters are represented in the “control code” format (for example, CR is ^M, where “control” is represented as DARK-SQUARE symbol).

2of5 **DC4 DC4 ESC ! n16pEM**
Bidirectional The BID-25 bar code data fields do not have a defined format length and contain numeric data only. Otherwise, question marks are printed in place of the HRC string, if possible. If the ocheck digit option field takes a value of 1, an internally generated check digit is added to the encoded string that will not show on the required HRC string.

2of5 **DC4 DC4 ESC ! n17pEM**
Interleaved The 2/5-INTERLEAVED bar code does not have a defined format length. However, the total sum of the characters must be even. nindicates the bar code height and must be in the range 1 to 12. p must be NUL (hex. X'00') if no Human Readable Characters are to be printed, and 1 (hex. X'01') if they are to be printed.

2of5 **DC4 DC4 ESC ! n18pEM**
Industrial The 2/5 INDUSTRIAL bar code. Data format length is variable and the supported character set only provides ASCII numeric figures 0 to 9. nindicates the bar code height in units of 1/6 inch and must be in the range 1 to 12. pmust be NUL (hex. X'00') if no Human Readable Characters are to be printed, and 1 (hex. X'01') if they are to be printed.

2of5 **DC4 DC4 ESC ! n19pEM**
The 2/5 MATRIX bar code. Data format length is variable and the supported character set only provides ASCII numeric figures 0 to 9. nindicates the bar code height in units of 1/6 inch and must be in the range 1 to 12. pmust be NUL (hex. X'00') if no Human Readable Characters are to be printed, and 1 (hex. X'01') if they are to be printed.

Code 39 **DC4 DC4 ESC ! n20pEM**
The CODE 39 bar code. Data format length is variable and must always start and end with an asterisk. It can contain the alphanumeric character listed below:

0123456789
ABCDEFGHIJKL MNOP QRS T UVWX Y Z -. SPACE$/+%*(as start / stop character)

The parameter indicates the bar code height in units of 1/6 inch and must be in the range 1 to 12. The pparameter must be NUL (hex. X'00') if no Human Readable Characters are to be printed, and 1 (hex. X'01') if they are to be printed.

CODABAR **DC4 DC4 ESC ! n22pEM**
The Codabar bar code data fields do not have a defined format length and contain data belonging to the character set listed hereafter:

0123456789-$:/.+

ABCDEN T *abcdent (only as START/STOP characters)
The printer allows any combination of START/STOP characters. If the first and last characters of the received string do not belong to the START/STOP characters subset, question marks are printed in place of the HRC string, if possible

CODE 128 **DC4 DC4 ESC ! n23pEM**
The CODE-128 bar code data fields do not have a defined format length and contain data belonging to the standard ASCII character set, including control codes. Since the GS and EM control codes used within the DC4 DC4 ESC (...EM “Print Bar Code” control sequence are part of the supported character set, the host application must SET THE HIGHER-

ORDER BIT of the above control codes to allow the printer to distinguish between encodable data and string terminators.

POSTNET **DC4 DC4 ESC ! n24pEM**
The POSTNET bar code data fields contain only numeric data and do not have a defined format length. POSTNET bar codes have no printed HRC string. The LOW/TALL bars that encode the symbol comply with the U.S.P.S standard regardless of the p field value.

DC4 DC4 ESC (GS data EM

Prints bar code symbols.

ASCII Code	DC4 DC4 ESC (GS n1 data GS n2 data ... EM
Hexadecimal Value	X'14' X'14' X'1B' X'28' X'1D' n1 data ... 19
Decimal Value	20 20 27 40 29 n1 data ... 25
Range	1 = n = 12
	0 = p = 1

This sequence prints the bar code symbol according to the previous selection. If you want to print more than one bar code symbol of the same type and height, GS n defines the distance from the beginning of the line or between two bar code symbols in multiples of 1/60 or 1/90 of an inch, depending upon the selected barcode density (120 or 180 dpi). At the end of the line EM must close this command.

Miscellaneous

DC4 DC4 ESC @

Re-initializes the printer.

ASCII Code	DC4 DC4 ESC @
Hexadecimal Value	X'14' X'14' X'1B' X'40'
Decimal Value	20 20 27 64

This command resets the printer mode and clears the buffer of printable data.

DC4 DC4 ESC J

Sets amplification factor.

ASCII Code	DC4 DC4 ESC J hv
Hexadecimal Value	X'14' X'14' X'1B' X'4A' hv
Decimal Value	20 20 27 74 hv

This command sets the required amplification factor to be applied to the current font.

h It is the horizontal amplification factor; the value range is 1 to 4. It is applied to the basic symbols.
It is the vertical amplification factor; the value range is 1 to 4.
0 values for either the hand vparameters keep the related current amplification factor unchanged.

The internally available symbol's amplification algorithms support the following character attributes that may be selected by means of the available control sequences within the currently active emulation: double width, double-height, emphasized, double strike, subscript, superscript, italics, proportional, and compressed.
Doublewide and double-high attributes must be lower than 2.

DC4 DC4 ESC N

Selects/loads or parks the fanfold from the Front 2 path.

ASCII Code	DC4 DC4 ESC N n
Hexadecimal Value	X'14' X'14' X'1B' X'4E' n
Decimal Value	20 20 27 78 n
Range	0 = n= 1

n	Selection
0	Selects and loads the fanfold from the Front2 path. If the paper is present, the printer automatically parks the fanfold that is not requested before loading the new one (after having pressed the PARK key in response to the TEAR IF NECESS/PARK PAPER message).
1	Parks the fanfold loaded from the Front2 path to allow the tear off function (after having pressed the PARK key in response to the TEAR IF NECESS/PARK PAPER message).

DC4 DC4 ESC R

String rotation.

ASCII Code	DC4 DC4 ESC R n string EM
Hexadecimal Value	X'14' X'14' X'1B' X'52' n string EM
Decimal Value	20 20 27 82 n string EM

n	Selection
0	No rotation.
1	Rotation at 0°
2	Rotation at 90°
3	Rotation at 180°
4	Rotation at 270°

DC4 DC4 ESC r

Digit rotation.

ASCII Code	DC4 DC4 ESC r
Hexadecimal Value	X'14' X'14' X'1B' X'72'
Decimal Value	20 20 27 144

This command is used to set the required character rotation to be applied to the selected font.

n	Selection
0	No rotation.
1	Rotation at 0°
2	Rotation at 90°
3	Rotation at 180°
4	Rotation at 270°

DC4 DC4 ESC T

Selects/loads or parks the fanfold from the Front1 path.

ASCII Code	DC4 DC4 ESC T n
Hexadecimal Value	X'14' X'14' X'1B' X'54' n
Decimal Value	20 20 27 84 n

Range 0 = n = 1

n	Selection
0	Selects and loads the fanfold from the Front1 path. If the paper is present (cut sheet/fanfold), the printer automatically parks this fanfold that is not requested before loading the new one (after having pressed the PARK key in response to the TEAR IF NECESS/PARK PAPER message).
1	Parks the fanfold loaded from the Front1 path to allow the tear off function (after having pressed the PARK key in response to the TEAR IF NECESS/PARK PAPER message).

DC4 DC4 ESC Y

Selects emulation.

ASCII Code	DC4 DC4 ESC Y n
Hexadecimal Value	X'14' X'14' X'1B' X'59' n
Decimal Value	20 20 27 89 n

Selects the printer emulation type according to the n parameter value:

n	Emulation
0	Default printer emulation
1	EPSON LQ Series
2	IBM Proprinter XL24
5	IBM 2391+

DC4 DC4 ESC Z

Makes AGA in column.

ASCII Code	DC4 DC4 ESC Z n
Hexadecimal Value	X'14' X'14' X'1B' X'5A' n
Decimal Value	20 20 27 90 n

The n parameter is the column number at 10 cpi where the AGA (Automatic Gap Adjustment) is made.

DC4 DC4 ESC u

Selects the user macros.

ASCII Code	DC4 DC4 ESC u n
Hexadecimal Value	X'14' X'14' X'1B' X'75' n
Decimal Value	20 20 27 117 n
Range	0 = n = 4

n	Selection
1	Selects User Macro 1
2	Selects User Macro 2
4	Selects User Macro 3
5	Selects User Macro 4

DC4 DC4 ESC D

Sends the operator panel messages to the serial I/F.

ASCII Code	DC4 DC4 ESC D n
Hexadecimal Value	X'14' X'14' X'1B' X'44' n
Decimal Value	20 20 27 68 n

This command enables or disables sending operator panel messages to the serial I/F. The string to send is the following: STX “message (16 ASCII byte-characters)”EXT.

n	Selection
0	enabled
1	disabled

DC4 DC4 ESC v

Selects graphics print speed.

ASCII Code	DC4 DC4 ESC v n
Hexadecimal Value	X'14' X'14' X'1B' X'76' n
Decimal Value	20 20 27 118 n

n	Selection
0	Selects graphics printing at high vertical density (180 dpi) -reduced print speed.
1	Selects graphics printing at low vertical density (90 dpi) -high print speed.

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Chapter 3. ANSI Emulation Commands

The following printer commands are supported by this printer according to the ANSI X3.64 emulation.

Most dimensional parameters in ANSI protocol are expressed in “decipoints”. For example:

1 decipoint	= 1/720 inch
72 decipoints	= 1/10 inch
120 decipoints	= 1/6 inch
720 decipoints	= 1 inch
2880 decipoints	= 4 inches

All parameter values must be expressed as ASCII numeric rather than binary values.

Parameters, within commands with multiple parameters, must be separated by a semicolon “;”.

See “Basic Program Sample” at the end of this chapter and result printed by the printer.

Character Set Control

ESC [p1 x

Selects national character set (Select National Characters -SNC).

ASCII Code	ESC [p1 x
Hexadecimal Value	X'1B' X'5B' p1 X'78'
Decimal Value	27 91 p1 120

This command selects the national character set table according to the p1 parameter value. See the following tables:

Table 1. 7-bit Substitution

p1	NATION	p1	NATION
0	USA	13	Swedish/Finnish A
1	Germany	14	Swedish/Finnish B
2	French A	15	Swedish/Finnish C
3	French B	16	Swedish/Finnish D
4	French Canadian	17	Switzerland
5	Netherlands	18	USA (ISO)
6	Italian	19	Yugoslavia
7	United Kingdom	20	United Kingdom A
8	Spanish	21	Turkey
9	Danish/Norwegian A	22	Greece
10	Danish/Norwegian B	25	Cyrillic
11	Danish/Norwegian C		
12	Danish/Norwegian D		

See the tables in “ANSI National Variations”.

Table 2. 8-bit Substitution

p1	CHARACTER SETS
437	Code Page 437
850	Code Page 850
851	Code Page 851
852	Code Page 852
853	Code Page 853
855	Code Page 855
858	Code Page 858 (Euro symbol included)
860	Code Page 860
863	Code Page 863
864	Code Page 864
865	Code Page 865
866	Code Page 866
867	Code Page 867
1250	Code Page 1250
5915	ISO 8859-15 (Euro symbol included)
8570 to 8575	Reserved
8576	Mazowia
8577	Turkish
8578	Greek
8579	Kamenicky
8580	CWI
8581	Roman-8
8582	IN2
8583	Code Page 864E
8584	Reserved
8585	Bulgarian
8586 to 8590	Reserved
8591	ISO 8859-1 Western Europe
8592	SO 8859-2 Eastern Europe
8593	ISO 8859-3 Southern Europe
8594	ISO 8859-4 Northern Europe
8595	ISO 8859-5 Cyrillic
8596	ISO 8859-6 Arabic
8597	ISO 8859-7 Greek
8598	ISO 8859-8 Hebrew
8599	ISO 8859-9 Southern Europe 2
8600 to 8700	Reserved for other ISO Tables

See the tables in “Character Sets”.

Character Pitch and Print Modes

ESC [p1; ... pn m

Select graphics rendition (SGR).

ASCII Code ESC [p1; ... pn m
Hexadecimal Value X'1B' X'5B' p1 X'3B' ... pn X'6D'
Decimal Value 27 91 p1 59 ... pn 109

This command selects fonts, pitch, print modes, and character styles according to the parameter settings:

p	DEFINITION
0	Normal Print Mode
1	Bold Print Mode
2	Subscript Mode
3	Superscript Mode
4	Underline Mode
5	Expanded Mode
6	Proportional
7	Italic Mode
8, 9	Reserved
10	Draft Font
11	Draft Font
12	LQ Gothic
13	Draft Font
14	LQ Courier
15	Draft Italic
16	LQ Gothic Italic
17	Draft Italic
18	LQ Courier Italic
19	Draft
20	Reserved

p	DEFINITION
21	Double Underline Mode
22	Cancel Bold Mode
23	Reserved
24	Cancel Underline Mode (Single & Double)
25	Cancel Expanded Mode
26	Cancel Proportional Mode

Subscript and Superscript modes are enabled through the System Menu (ANSI OPTIONS-S/SCRIPT YES). Refer to the Administrator's Manual.

ESC [p1; p2 SP B

Graphic size modification (GSM).

ASCII Code	ESC [p1; p2 SP B
Hexadecimal Value	X'1B' X'5B' p1 X'3B' p2 X'20' X'42'
Decimal Value	27 91 p1 59 p2 32 66

This command sets the height and/or width of expanded and oversized characters.

The p1 and p2 parameters are the percentages by which the height and width will be multiplied, respectively. The default values of p1 and p2 are 100%.
The maximum expansion factor is18700 for oversize mode and 800 for expanded mode, respectively.

ESC [p1 t

Special print mode (Oversize/Expanded/Bar code Mode -SPM).

ASCII Code	ESC [p1 t
Hexadecimal Value	X'1B' X'5B' p1 X'74'
Decimal Value	27 91 p1 116

This sequence selects or deselects oversize expanded or bar code mode according to the p1 parameter value. See the following table:

p1	**FUNCTION**
0	Cancel special mode
1	Select oversize mode
2	Select expanded mode
3	Select bar code mode

It can select just one special print mode at a time.

SO

Shift out.

ASCII Code	SO
Hexadecimal Value	X'0E'
Decimal Value	14

This code enables Expanded/Oversize mode as determined by the last received ESC [p1 t command.

SI

Shift in.

ASCII Code	SI
Hexadecimal Value	X'0F'
Decimal Value	15

This code disables Expanded/Oversize mode as determined by the last received ESC [p1 t command.

ESC [p1; pn {

Unidirectional printing (UDP).

ASCII Code	ESC [p1; pn {
Hexadecimal Value	X'1B' X'5B' p1 X'3B' pn X'7B'
Decimal Value	27 91 p1 59 pn 123

This command selects the unidirectional or bidirectional printing according to the p parameter values. See the following table:

p	FUNCTION
0	Cancel unidirectional printing
1	Print unidirectional LQ and DP
2	Print unidirectional Dot Graphics

Horizontal Movements

BS

Back space.

ASCII Code	BS
Hexadecimal Value	X'08'
Decimal Value	8

The BS code moves the print head one character to the left at the current cpi.

CR

Carriage return.

ASCII Code	CR
Hexadecimal Value	X'0D'
Decimal Value	13

This code causes the print head to be moved to the left margin on the current line.

SP

Space.

ASCII Code	SP
Hexadecimal Value	X'20'
Decimal Value	32

This code positions one character space to the right of the print position.

ESC [p1 '

Horizontal position absolute (HPA).

ASCII Code	ESC [p1 '
Hexadecimal Value	X'1B' X'5B' p1 X'60'
Decimal Value	27 91 p1 96

This command causes the print position to be moved to the decipoint location specified by p1. This sequence can be used to print within the left, top, and bottom margins.

ESC [p1 a

Horizontal position relative (HPR).

ASCII Code	ESC [p1 a
Hexadecimal Value	X'1B' X'5B' p1 X'61'
Decimal Value	27 91 p1 97

This command moves the print position to the right, relative to the current position. The p1 parameter specifies the number of decipoints. This command cannot be used to move beyond the right margin.

ESC [p1; p2 s

Left/right margin set (SLR).

ASCII Code	ESC [p1; p2 s
Hexadecimal Value	X'1B' X'5B' p1 X'3B' p2 X'73'
Decimal Value	27 91 p1 59 p2 115

This command sets the left and right margin values. The p1 parameter specifies the decipoint value of the left margin. The p2 parameter specifies the decipoint value of the right margin value. The default value for the left margin is 0. The value for the right margin is the maximum width supported by the printer configuration (that is 13.6*720=9792).

ESC [p1 j

Horizontal position backward (HPB).

ASCII Code	ESC [p1 j
Hexadecimal Value	X'1B' X'5B' p1 X'6A'
Decimal Value	27 91 p1 106

This command causes the current horizontal position to be moved backwards as specified by the p1 parameter (decipoints).

HT

Horizontal tab.

ASCII Code	HT
Hexadecimal Value	X'09'
Decimal Value	9

This code causes the print head to be moved to the next tab stop.

ESC H or HTS

Horizontal tab setting.

ASCII Code	ESC H or HTS
Hexadecimal Value	X'1B' X'48' (7-bit) or X'88' (8-bit)
Decimal Value	27 72 (7-bit) or 136 (8-bit)

This command causes a horizontal tab stop to be set to the decipoint value of the current print position.

ESC [p1; pn u

Sets horizontal tab stops at specified positions multiple horizontal tab set (HTS).

ASCII Code	ESC [p1; pn u
Hexadecimal Value	X'1B' X'5B' p1 X'3B' pn X'75'
Decimal Value	27 91 p1 59 pn 117

This command sets up to 22 horizontal tab stops at each decipoint position specified by p parameters. When specifying more than one position, enter the parameters in ascending order.

Vertical Movements

LF

Line feed.

ASCII Code	LF
Hexadecimal Value	X'0A'
Decimal Value	10

This code positions the paper one line space as indicated by the current line spacing value.

ESC D or IND

Index.

ASCII Code	ESC D or IND
Hexadecimal Value	X'1B' X'44' (7-bit) or X'84' (8-bit)
Decimal Value	27 68 (7-bit) or 132 (8-bit)

This command causes the paper to be positioned down one line space as indicated by the current line spacing value.

ESC E or NEL

Next line.

ASCII Code	ESC E or NEL
Hexadecimal Value	X'1B' X'45' (7-bit) or X'85' (8-bit)
Decimal Value	27 69 (7-bit) or 133 (8-bit)

This command causes the paper to be positioned down one line space as indicated by the current line spacing value. The column counter is reset to the left margin value.

ESC K or PLD

Partial line down.

ASCII Code	ESC K or PLD
Hexadecimal Value	X'1B' X'4B' (7-bit) or X'8B' (8-bit)
Decimal Value	27 75 (7-bit) or 139 (8-bit)

This command causes the paper to be positioned down one half line space at the current line spacing value. This can create an appearance of subscripting. This sequence is also used after an ESC L (partial line up sequence) to recover the original active vertical position.

ESC L or PLU

Partial line up.

ASCII Code	ESC L or PLU
Hexadecimal Value	X'1B' X'4C' (7-bit) or X'8C' (8-bit)
Decimal Value	27 76 (7-bit) or 140 (8-bit)

This command causes the paper to be positioned up one half line space at the current line spacing value. This can create an appearance of superscripting. This sequence is also used after an ESC K (partial line down sequence) to recover the original active vertical position.

ESC M or RI

Reverse index.

ASCII Code	ESC M or RI
Hexadecimal Value	X'1B' X'4D' (7-bit) or X'8D' (8-bit)
Decimal Value	27 77 (7-bit) or 141 (8-bit)

This command causes the paper to be positioned up one line space at the current line spacing value.

ESC [p1 d

Vertical position absolute (VPA).

ASCII Code	ESC [p1 d
Hexadecimal Value	X'1B' X'5B' p1 X'64'
Decimal Value	27 91 p1 100

This command causes the current vertical position to be set to the decipoint value specified by the p1 parameter relative to the top most line of the current form length. This sequence can be used to print within the top and the bottom margins.

ESC [p1 e

Vertical position relative (VPR).

ASCII Code	ESC [p1 e
Hexadecimal Value	X'1B' X'5B' p1 X'65'
Decimal Value	27 91 p1 101

This command causes the current vertical position to be advanced to the position specified by the p1 parameter (in decipoints) relative to the current print line position.

ESC [p1; p2 f

Horizontal and vertical position absolute (HVP).

ASCII Code	ESC [p1; p2 f
Hexadecimal Value	X'1B' X'5B' p1 X'3B' p2 X'66'
Decimal Value	27 91 p1 59 p2 102

This command causes the current print position to be moved to the vertical (p1) and horizontal (p2) decipoint locations specified relative to the top left corner of the page.

This sequence can be used to print within the right, left, top and bottom margins.

ESC [p1 k

Vertical position backward (VPB).

ASCII Code	ESC [p1 k
Hexadecimal Value	X'1B' X'5B' p1 X'6B'
Decimal Value	27 91 p1 107

This command causes the current vertical position to be moved backwards as specified by the p1 parameter (decipoints) relative to the current print line position.

ESC [p1; pn g

Tab clear (TBC).

ASCII Code	ESC [p1; pn g
Hexadecimal Value	X'1B' X'5B' p1 X'3B' pn X'67'
Decimal Value	27 91 p1 59 pn 103

This command clears horizontal and vertical tab stops. If no parameter is present, the horizontal tab stop at the current position is cleared (default).

p	**DESCRIPTION**
0 (default)	Clear horizontal tab at current position
1	Clear vertical tab at current position
2	Clear all horizontal tab stops
3	Clear all vertical tab stops

VT

Vertical tab.

ASCII Code	VT
Hexadecimal Value	X'0B'
Decimal Value	11

This code causes printing to be moved to the left margin at the next vertical tab stop.

ESC J or VTS

Vertical tab setting.

ASCII Code	ESC J or VTS
Hexadecimal Value	X'1B' X'4A' (7-bit) or X'8A' (8-bit)
Decimal Value	27 74 (7-bit) or 138 (8-bit)

This command causes a vertical tab stop to be set to the decipoint value of the current vertical position.

ESC [p1; pn v

Sets vertical tab stops at specified positions (Multiple Vertical Tab Set -VTS).

ASCII Code	ESC [p1; pn v
Hexadecimal Value	X'1B' X'5B' p1 X'3B' pn X'76'
Decimal Value	27 91 p1 59 pn 118

This command sets up to 12 vertical tab stops at each decipoint position specified by p parameters. The tab stops are measured from the top of the page. When specifying more than one position, enter the parameters in ascending order.

FF

Form feed.

ASCII Code	FF
Hexadecimal Value	X'0C'
Decimal Value	12

This code causes the data in the print buffer to be printed out and then advances the paper to the top of the next form.

ESC [p1; p2; p3 r

Form definition (FD).

ASCII Code	ESC [p1; p2; p3 r
Hexadecimal Value	X'1B' X'5B' p1 X'3B' p2 X'3B' p3 X'72'
Decimal Value	27 91 p1 59 p2 59 p3 114

This command sets the page length, top and bottom margins.

The p1, p2 and p3 parameters specify the decipoint values.

pn	**FUNCTION**
p1	Page Length
p2	Top Margin Position From the Beginning of the Page
p3	Bottom Margin Position From the End of the Page

The maximum page length value is 15840 decipoints (22 inches).

ESC [p1; p2 <SP> G

Sets the line/character spacing.

ASCII Code	ESC [p1; p2 <SP> G
Hexadecimal Value	X'1B' X'5B' p1 X'3B' p2 X'20' X'47'
Decimal Value	27 91 p1 59 p2 32 71

This command sets the spacing between lines (p1 parameter) and the horizontal character pitch (p2 parameter) in decipoints.

If the vertical spacing value exceeds the current form length, this setting is ignored.

Interface Control

NUL

Ignored.

ASCII Code	NUL
Hexadecimal Value	X’00’ or NUL
Decimal Value	00

This code is ignored.

ENQ

Enquiry.

ASCII Code	ENQ
Hexadecimal Value	X'05'
Decimal Value	5

This code is used to request the message string defined by the OSC command when parameter p1=8 is transmitted to the host.

DC1

Selects printer (Data Control 1).

ASCII Code	DC1
Hexadecimal Value	X'11'
Decimal Value	17

In parallel interface, this code reselects the printer after the printer has been deselected by a DC3 code.

In serial interface, this code is sent from the printer to the host to indicate that the printer is ready to receive data.

DC3

Deselects printer (Data Control 3).

ASCII Code	DC3
Hexadecimal Value	X'13'
Decimal Value	19

In parallel interface, this code causes the printer to enter the standby condition until a DC1 code is received.
In serial interface, this code is sent from the printer to the host to indicate that it is not ready to receive data.

Operating System Control

BEL

Bell.

ASCII Code	BEL
Hexadecimal Value	X'07'
Decimal Value	7

This code causes the buzzer to sound for about 0.5 second.

DEL

Delete.

ASCII Code	DEL
Hexadecimal Value	X'7F'
Decimal Value	127

In parallel interface, this code causes the last received character to be deleted.

ESC

Escape.

ASCII Code	ESC
Hexadecimal Value	X'1B'
Decimal Value	27

This code is used as an escape sequence introducer.

ESC \ or ST

String terminator.

ASCII Code	ESC \ or ST
Hexadecimal Value	X'1B' X'5C' (7-bit) or X'9C' (8-bit)
Decimal Value	27 92 (7-bit) or 156 (8-bit)

This command closes the other escape sequences including the operating system and dot graphics commands.

ESC Q or PU1

Executes Selftest.

ASCII Code	ESC Q or PU1
Hexadecimal Value	X'1B' X'51' (7-bit) or X'91' (8-bit)
Decimal Value	27 81 (7-bit) or 145 (8-bit)

In serial interface, upon receipt of this command the printer transmits 1B 50 30 1B 5C.

ESC c

Resets to initial state (RIS).

ASCII Code	ESC c
Hexadecimal Value	X'1B' X'63'
Decimal Value	27 99

This command writes the printer parameters from the stored format assigned to the current path into the current format.

ESC k

Prints test character (PTC).

ASCII Code	ESC k
Hexadecimal Value	X'1B' X'6B'
Decimal Value	27 107

This sequence causes one line of the print head test character to be printed.

ESC [p1; ... pn h

Sets mode (SM).

ASCII Code	ESC [p1; ... pn h
Hexadecimal Value	X'1B' X'5B' p1 X'3B' ... pn X'68'
Decimal Value	27 91 p1 59 ... pn 104

This command sets a specific print mode according to the parameter value. If the first parameter (p1)is preceded by a “>” symbol then all parameters are interpreted as proprietary defined parameters. If the “>” character is not specified, all parameters are interpreted as ANSI defined parameters.

The proprietary defined parameter values are:

p	MNEMONIC	MODE FUNCTION
1	PRM0	Proportional Print Mode
2	CSI	Single Character CSI Mode
3	BLD	Bold Mode
4	CS2	Character Set 2 Mode

The ANSI defined parameter values are:

p	MNEMONIC MODE FUNCTION
0	Ignored
20	LNM Auto CR on LF

ESC p1; pn l

Resets mode (RM).

ASCII Code	ESC p1; pn l
Hexadecimal Value	X'1B' X'5B' p1 X'3B' pn X'6C'
Decimal Value	27 91 p1 59 pn 108

This sequence resets the print mode(s) indicated by the p1/pn parameter(s).

ESC [p1; p2 SP~

Selects emulation (EMU).

ASCII Code	ESC [p1; p2 SP~
Hexadecimal Value	X'1B' X'5B' p1 X'3B' p2 X'20' X'7E'
Decimal Value	27 91 p1 59 p2 32 126

This sequence selects the emulation according to p values. The p1 parameter is an emulation identifier value while p2 is a reset control value.
The proprietary defined parameter values are:

p1	p2	FUNCTION
0		ANSI
1 -20		Reserved
21		IBM Proprinter XL 24/24E
22		EPSON LQ 1050
	0	Hold values (default). The current settings remain valid after changing the printer emulation.
	1	Full reset. The status of such parameters reverts to defaults dependent on the selected emulation.

To select ANSI mode from the Proprinter XL 24 mode and maintain the parameters, the sequence would be: <ESC>[0; 0<SP>~ Leading zeros and defaulting parameters are not guaranteed to be parsed and therefore should not be used by the application. Parameter p1 & p2 will be expressed as ASCII, not binary, values. In the example above, “0” is “30H”, not “00H”.

Paper Path Selection

ESC [p1; pn p

Assign source for forms.

ASCII Code	ESC [p1; p2 p
Hexadecimal Value	X'1B' X'5B' p1 X'3B' pn X'70'
Decimal Value	27 91 p1 59 pn 32 112

This command controls the modes of paths for parking, loading paper. The p parameter is an ASCII value.

See the following table:

P	PAPER PATH CONTROL
0-7	Reserved
8	Park paper in the current path. Fanfold can be moved backwards for two form lengths. This creates a “Paper Out” fault condition that exists until paper is loaded from the control panel.
9	Load Paper from the selected paper path.
10	Select and load paper from the Front2 (is the optional Front 2 push tractor assembly is installed). The current paper will be parked or ejected.
11	Select and load paper from the Front 1. The current paper will be parked.
13	Select and load paper from the Front 2. (is the optional Front 2 push tractor assembly is installed). The current paper will be parked or ejected.
14	Reserved

Graphics Control Functions

ESC [p1 q

Select graphics mode/density (GRM).

ASCII Code	ESC [p1 q
Hexadecimal Value	X'1B' X'5B' p1 X'71'
Decimal Value	27 91 p1 113

This command selects the density of the graphics mode.

p	DPI (Horizontal)		Image	dpi vertical	#bytes/dot-column
	AGM=N	AGM=Y			
0	72	60	real	72	1 (6-bit mode)
1	144	120	real	72	1 (6-bit mode)
3	216	180	real	72	1 (6-bit mode)
10	180	180	real	180	4 (24-bit mode)
11	360	360	virtual	180	4 (24-bit mode)

If ASF has not been selected (n=15/16/17 or via operator panel), then n=1—4 is ignored. The appropriate path option must be selected from the System Menu in order for the sheet feeder to work.

ESC P data

Enter dot graphics mode (Device Control String).

ASCII Code	ESC P data
Hexadecimal Value	X'1B' X'50' data
Decimal Value	27 80

This command enables the dot graphics mode. The density is selected according to the GRM command. The line spacing value automatically changes if 72-dpi resolution (6-bit mode) is active.

The line spacing value for 180-dpi resolution (24-bit mode) must be selected prior to entering graphics mode.

In 6-bit mode, only 6 bits of a data byte are required to determine which wires are fired. Therefore, only one byte is required for each graphics dot column.

In 24-bit mode, 24 bits of four data bytes are required to determine which wires are fired. Only 6 bits of each byte are used. Therefore, four bytes are required for each graphics dot column.

Table 3. 6-bit mapping

6 BITS IN 1 BYTE				PRINT HEAD WIRE DATA BIT
1	2	&	3	0
3	4	&	5	1
6	7	&	8	2
8	9	&	10	3
11	12	&	13	4
13	14	&	15	5

Since bits6&7are ignored, wires 16-24 are not used. The state (0 or 1) of bits 6 and 7 must be conditioned so as to make the entire byte fall within the range 20H through 7EH.

Table 4. 24-bit mapping

BYTE	PRINT HEAD WIRE	24 BITS IN 1 BYTE DATA BIT
	1	0
	2	1
1	3	2
	4	3
	5	4
	6	5
	7	0
	8	1
2	9	2
	10	3
	11	4
	12	5
	13	0

Table 5. 24-bit mapping (cont.)

BYTE	PRINT HEAD WIRE	24 BITS IN 1 BYTE DATA BIT
	14	1
3	15	2
	16	3
	17	4
	18	5
	19	0
	20	1
4	21	2
	22	3
	23	4
	24	5

Barcode Functions

ESC [p1; pn }

Sets bar code parameters (BC).

ASCII Code	ESC [p1; pn }
Hexadecimal Value	X'1B' X'5B' p1 X'3B' pn X'7D'
Decimal Value	27 91 p1 59 pn 125

This command allows selection of the bar code characteristics such as style height, symbol rotation and so on. The command ESC [3 t enables the bar code mode while ESC [0 t disables the mode.

p1: **Bar code style**

p1	**FUNCTION**
0	Interleaved 2 of 5
1	Bidirectional 2 of 5
2	Matrix 2 of 5
3	Industrial 2 of 5
4	Code 3 of 9 (default)
5	EAN-8
6	EAN-13
7	Code 11
9	Codabar (default start/stop = a/t)
10	Codabar (default start/stop = b/n)
11	Codabar (default start/stop = c/*)
12	Codabar (default start/stop = d/e)
13	UPC-A
14	UPC-E
15	Code 93
16	Code 128 (subset A, B and C)
17	Code 128 (subset A, B and C)
18	Code 128 (subset A, B and C)
19	MSI
20	UPC 2 Supplemental
21	UPC 5 Supplemental
22	EAN 2 Supplemental
23	EAN 5 Supplemental
50	Postnet

p2: **Barcode Height**

p2	**FUNCTION**
1	Minimum bar code height (1/12 inch)
120	Maximum bar code height (10 inches)
12	Default bar code height (1 inch)

p3: **Human Readable Input (HRI)**

p3	**FUNCTION**
0	Disables printing of the HRI
1	Enables printing of the HRI (default)

p4: **Narrow Bar**

Default width value: 2 (120, 144 and 180 dpi)

p5: **Wide Bar Width**

Default width value: 3 (120, 144 dpi), 4 (180 dpi)

p6: **Narrow Space Width**

Default width value: 6 (120, 144 and 180 dpi)

p7: **Wide Space Width**

Default width value: 7 (120, 144 dpi), 8 (180 dpi)

p8: **Intercharacter Space Width**

Default width value: 3 (120, 144 dpi), 4 (180 dpi)

p9: **Rotation**

p9	**FUNCTION**
0	0 degrees using current font
1	0 degrees using special HRI font
2	90 degrees using special HRI font
3	180 degrees using special HRI font
4	270 degrees using special HRI font

p10: **Horizontal Print Density for Bar Codes Printed**

p10	**FUNCTION**
1	120 dpi horizontal density
2	144 dpi horizontal density (Reserved)
3	180 dpi horizontal density

p11: **Check Digit**

p11	**FUNCTION**
0	No check digit requested (default)
1	Check digit requested

p12: **Human Readable Font -Reserved**

p13: **Bar Code Height (in 1/24th-inch increments) -Reserved**

Basic Program Sample

```
100 DEFSTR    DEFSTR    E:ESC=CHRS(27) 'Define Escape character
110 WIDTH     WIDTH     .LPT1:*,255
120 LPRINT    LPRINT    .FOLLOWING ARE SOME OF THIS PRINTER'S .;
121 LPRINT    LPRINT    .FEATURES USING THE ANSI EMULATION.
130 LPRINT    LPRINT    ESC;.[;72 C.;.10 CPI (PICA).
140 LPRINT    LPRINT    ESC;.[;60 G.;.12 CPI (ELITE).
150 LPRINT    LPRINT    ESC;.[;48 G.;.15 CPI.
160 LPRINT    LPRINT    ESC;.[;72 C.;.10 CPI.
170 LPRINT    LPRINT
180 LPRINT    LPRINT    ESC;.[6m.;.PROPOERTIONAL MODE.
190 LPRINT    LPRINT    ESC;.[0m.;.BACK TDO NORMAL.
200 LPRINT    LPRINT
210 LPRINT    LPRINT    ESC;.5m.;.DOUBLE-WIDE MODE.
220 LPRINT    LPRINT    LPRINT ESC;.0m':.BACK TO NORMAL.
230 LPRINT    LPRINT
240 LPRINT    LPRINT    LPRINT ESC;.[1m.;.BOLD PRINTING.
250 LPRINT    LPRINT    LPRINT ESC;.[0m.;.BACK TO NORMAL.
260 LPRINT    LPRINT    LPRINT ESC;.[1m.;.BOLD PRINTING.
270 LPRINT    LPRINT    LPRINT ESC;.[0m.;.BACK TO NORMAL.
280 LPRINT    LPRINT
290 LPRINT    LPRINT    ESC;.L.;.PARTIAL LINE UP .;
300 LPRINT    LPRINT    ESC;.K.;./ .;
310 LPRINT    LPRINT    ESC;.L.;.BACK TO NORMAL.
320 LPRINT    LPRINT
340 LPRINT    LPRINT    ESC;.[4m.;.UNDERLINE MODE.
350 LPRINT    LPRINT    ESC;.[0m.;.BACK TO NORMAL.
260 LPRINT    LPRINT    .
370 LPRINT    LPRINT    123.;
371 LPRINT    LPRINT    '456.
380 LPRINT    LPRINT    .12345678901234567890123456789012345678 90.;
381 LPRINT    LPRINT    .12345678901234567890.
390 LPRINT    LPRINT
400 LPRINT    LPRINT    ESC;.[10m.;.DRAFT PRINT MODE.
410 REM       REM
420 LPRINT    LPRINT    ESC;.[720;2880s.
430 REM       REM
440 LPRINT    LPRINT    .LEFT MARGIN NOW BEGINS AT 1 INCH AND .;
441 LPRINT    LPRINT    .RIGHT MARGIN NOW ENDS AT 4 INCHES.
450 LPRINT    LPRINT    ESC;.[0;9792S.
460 REM
470 LPRINT              .LEFT MARGIN NOW BEGINS AT 0 INCH AND .;
471 LPRINT              .RIGHT MARGIN NOW ENDS AT 13.6 INCHES.
480 LPRINT
490 LPRINT              ESC;.[62m.;.LQ PRINT MODE .
500 LPRINT
510 LPRINT              ESC;.[120; G.;
520 FOR                 [=1 TO 3
530 LPRINT              .1/6 INCH LINE FEED.

540 NEXT                I
550 LPRINT
560 LPRINT              ESC;.[90; G.;
570 FOR                 J=1 TO 3
580 LPRINT              .1/8 INCH LINE FEED.
590 NEXT                J
600 LPRINT              ESC;.[120; G.;.NOW 1/6 INCH LINE FEED.
610 LPRINT              .A FORMFEED <FF> FOLLOWS THIS LINE.;CHR$(12)
620 END
```

Basic Program Printed Output

```
FOLLOWING ARE SOME OF THIS PRINTER'S FEATURES USING THE ANSI EMULATION
10 CPI (PICA)
12 CPI (ELITE)
15 CPI
10 CPI

PROPORTIONAL MODE
BACK TO NORMAL

DOUBLE-WIDE MODE
BACK TO NORMAL

BOLD PRINTING
BACK TO NORMAL
BOLD PRINTING
BACK TO NORMAL

PARTIAL LINE UP
                 /  PARTIAL LINE DOWN  BACK TO NORMAL

UNDERLINE MODE
BACK TO NORMAL

          1         2         3         4         5         6
123456789012345678901234567890123456789012345678901234567890

DRAFT PRINT MODE
          LEFT MARGIN NOW BEGINS AT 1 IN
          CH AND RIGHT MARGIN NOW ENDS A
          T 4 INCHES

LEFT MARGIN NOW BEGINS AT 0 INCH AND RIGHT MARGIN NOW ENDS AT 13.6 INCHES

LQ PRINT MODE

1/6 INCH LINE FEED
1/6 INCH LINE FEED
1/6 INCH LINE FEED

1/8 INCH LINE FEED
1/8 INCH LINE FEED
1/8 INCH LINE FEED
NOW 1/6 INCH LINE FEED
A FORMFEED <FF> FOLLOWS THIS LINE
```

Chapter 4 LQ1600K Emulation Commands (DBCS)

Note: These commands are only valid for DBCS printing with the DBCS feature present.

DBCS mode is a special printer feature allowing the managing of specific commands dedicated to the handling and printing of the Double Byte Character Set (DBCS) as the GB18030 Standard Chinese set.

The DBCS mode feature is available by the selection the Epson LQ 1600K emulation at the “EMULATION” menu setting parameter. Other emulation selections do not support the DBCS mode.
Once the Epson LQ1600K has been selected, the DBCS mode is activated and deactivated through dedicated commands (FS & and FS).
When DBCS mode is activated, the printer prints the DBCS (GB18030) and recognizes and manages the incoming data and commands via the FS sequences.
In both cases, the Epson LQ 1600K emulation includes all the other Epson LQ standard ESC sequences, some of which can take effect immediately, even if DBCS mode is active, while some others are postponed until the printer exits the DBCS mode.

The following EPSON LQ Standard ESC sequences will work in DBCS mode:

ESC(W)n Set or cancel double width printing.
ESC(w)n Set or cancel double height printing.

Please refer to the other chapters of this manual for the complete list and description of the available ESC sequences.

FS &

Enter the DBCS print mode.

ASCII Code	FS &
Hexadecimal Value	X'1C' X'26'
Decimal Value	28 38

This command puts the printer in DBCS mode and recognizes all other FS commands, Epson standard ESC sequences, and prints all of the symbols of the GB18030 font set addressed by way of a single byte, two byte, and four byte address.

FS .

Exit the DBCS print mode.

ASCII Code	FS .
Hexadecimal Value	X'1C' X'2E'
Decimal Value	28 46

This command exits DBCS mode and the printer exits the GB18030 font set, prints with western font set, and recognizes all Epson standard ESC sequences. Only the FS & command is accepted to re-enter the DBCS mode.

FS SO

Sets double width mode.

ASCII Code	FS SO
Hexadecimal Value	X'1C' X'0E'
Decimal Value	28 14

All of the characters following this command are printed horizontally, enlarged two times. This print mode is reset by DC4, FS DC4 commands and automatically resets at the end of the line with a line terminator (LF, FF, CR, ...)

FS DC4

Resets double width mode.

ASCII Code	FS DC4
Hexadecimal Value	X'1C' X'14'
Decimal Value	28 20

This command resets the double width print mode previously set by the FS SO command.

FS W n

Sets -Resets quadruple print mode.

ASCII Code	FS W n
Hexadecimal Value	X'1C' X'57' n
Decimal Value	28 87 n
Range	n = 1 set
	n = 0 reset

This command sets (n=1) double width and double height print mode. The character dimension will be 2x2 the normal dimension.
With n=0 the double width/height print mode is reset.

FS J

Sets 90 degrees counterclockwise character rotation.

ASCII Code	FS J
Hexadecimal Value	X'1C' X'4A'
Decimal Value	28 74

Printable data after this command are rotated 90 degrees counterclockwise. This mode is also called vertical print.

FS K

Resets character rotation.

ASCII Code	FS K
Hexadecimal Value	X'1C' X'4B'
Decimal Value	28 75

This command resets the vertical print which was set by FS J and resumes horizontal printing.

FS D d1 d2

Composes two half-width, rotated characters into a normal size rotated character space.

ASCII Code	FS D d1 d2
Hexadecimal Value	X'1C' X'44' d1 d2
Decimal Value	28 68 d1 d2

d1 = 1' character address
d2 = 2' character address

The d1 character is printed in half width and rotated 90° counterclockwise.
The d2 character is composed in half width, rotated 90° counterclockwise, and it is printed above the d1 character.
The occupied space is the same as a normal size rotated character.

FS -n

Sets -Resets underline mode.

ASCII Code	FS -n
Hexadecimal Value	X'1C' X'2D' n
Decimal Value	28 45 n

Range
n = 0 resets underline mode.
n = 1 sets single underline mode.
n = 2 sets double underline mode.

This command sets two different types of underline:
n=1 A single dotted line.
n=2 A double dotted line.

Unrelining character will terminate when a new FS-n command is received and n=0.

FS S n1 n2

Defines the left and right empty character space of a normal-sized character.

ASCII Code	FS S n1 n2
Hexadecimal Value	X'1C' X'53' n1 n2
Decimal Value	28 83 n1 n2

n1 and n2 are in n/180 of an inch.

n1 (1 to 127) defines the empty space at the left of the character cell. n2 (1 to 127) defines the empty space at the right of the character cell of each normal sized character.

The default values are: n1=0, n2=1.5.

For example, if a normal sized character cell is 12/180 wide, with the default values, the equivalent character per inch is 180/13.5 = 13.3 characters per inch.

FS T n1 n2

Defines the left and right empty character space of a half-sized character.

ASCII Code	FS T n1 n2
Hexadecimal Value	X'1C' X'54' n1 n2
Decimal Value	28 84 n1 n2

n1 and n2 are in n/180 of an inch.
n1 (1 to 127) defines the empty space at the left of the character cell. n2 (1 to 127) defines the empty space at the right of the character cell of each half sized character.
The default values are: n1=0, n2=1.5.

For example, if a half sized character cell is 12/180 wide, with the default values, the equivalent character per inch is 180/13.5 = 13.3 char./inch.

FS U

Define half-sized character as half of a normal sized character.

ASCII Code	FS U
Hexadecimal Value	X'1C' X'55'
Decimal Value	28 85

This command sets the size of the character to be half of the normal size including the left and right empty space so that two half sized characters occupy the same space of one normal sized character.

FS SI

Sets the print of half-sized characters.

ASCII Code	FS SI
Hexadecimal Value	X'1C' X'0F'
Decimal Value	28 15

This command sets the print of half sized characters as defined by the FS U and FS T commands.

FS V

Resets print of half-sized characters.

ASCII Code	FS V
Hexadecimal Value	X'1C' X'56'
Decimal Value	28 86

This command cancels the print of half sized characters.

FS r n

Sets superscript or subscript print mode (1/4 normal size).

ASCII Code	FS rn
Hexadecimal Value	X'1C' X'72' n
Decimal Value	28 114 n
	n=0 set superscript print
	n=1 set subscript print

This command sets printing of superscript and subscript characters. The size of the characters is 1/4 of normal size. The character prints in the upper area (superscript) or lower area (subscript). For example, superscript and subscript.

FS DC2

Cancels half-sized and 1/4-sized print and restores normal size print.

ASCII Code FS DC2
Hexadecimal Value X'1C' X'12'
Decimal Value 28 18

This command cancels printing of superscript and subscript characters. Normal sized printing is resumed.

FS x n

Sets print quality level for the DBCS font set.

ASCII Code	FS xn
Hexadecimal Value	X'1C' X'78' n
Decimal Value	28 120 n
	n=0 set Draft (high speed)
	n=1 set Quality (low speed)

There are four type of print quality level, two for Draft mode and two for Quality mode. A specific Menu Item (see the Administrator's Manual) assigns which of the two Draft modes is activated when the parameter n is
equal to 0 and which of the two Quality modes is activated when the parameter n is equal to 1.

n=0 Activate the NLQ or LQ mode as specified with the "SW Qual-Level" menu item.
n=1 Activates the Draft or Best Draft mode as specified with the "SW Qual-Level" menu item.

FS 2 a^1 a^2 n^1... n^{72}

Sets user-defined character (DownLoading).

ASCII Code	FS 2 a1 ... n72
Hexadecimal Value	X'1C' X'32' ...
Decimal Value	28 50 ...

a^1 a^2 = The address of the GB18030 character set where the character to download has to be allocated.

The address must be included in the following ranges: X'AAA1' to X'AFFE', X'F8A1' to X'FEFE', X'A140' to X'A7A0'.

n^1 ... n^{72} = The shape of the character in dots as defined over a matrix of 24vx24h dot matrix.
Three bytes in vertical are equivalent to the 24 dots of any column; when multiplied by 24 columns it is equal to 72 bytes in total per character.

FS ! n

Sets multiple print attribute at once.

ASCII Code	FS ! n
Hexadecimal Value	X'1C' X'21' n
Decimal Value	28 33 n

This command sets multiple print attributes depending on the nparameter as follows:

Bit=1 Bit=0
Bit 7 underline –
Bit 6 – –
Bit 5 subscript superscript
Bit 4 1/4 size –
Bit 3 double height –
Bit 2 double width –
Bit 1 half size –
Bit 0 rotate print normal print

FS v n

Sets -Cancels line drawing character connection mode.

ASCII Code	FS vn
Hexadecimal Value	X'1C' X'76' n
Decimal Value	28 118 n

When n=1, this command allows the printer to fill the horizontal and vertical breaking point of a table that is being printed. This is accomplished by adding special horizontal or vertical line drawing characters.

These characters are in the following address ranges: X'A854' to X'A970', X'A9A4' to X'A9A7', X'A9B0' to X'A9BF'.

When n=0, the function is cancelled.

FS c nl nh

Sets the HMI (Horizontal Motion Index)

ASCII Code	FS c nl nh
Hexadecimal Value	X'1C' X'63' nl nh
Decimal Value	28 99 nl nh

This command defines the horizontal motion (space) occupied by a full size character. The horizontal motion is specified in n/180 of inch and its value is: HMI = ((nh* 256) + nl) * 1/180".

FS b n

Sets the DBCS standard line.

ASCII Code	FS bn
Hexadecimal Value	X'1C' X'62' n
Decimal Value	28 98 n

This command defines the position of the base line of the character.
n=0 The base line is the current print position.
n=1 The base line is 24/180 of and inch below the current position.

ESC (X n1 n2 a1 a2 a3

Defines a special printing effect.

ASCII Code	ESC (X
Hexadecimal Value	X'1B' X'28' X'58' ...
Decimal Value	27 40 88 ...

n=1 Fixed to 3.
n=2 Fixed to 0.
a=0 Applies the special effect externally to the characters.
a=1 Applies the special effect internally to the character (if the character is outlined) – function not supported
a=0 Resets any special effect.
a=1 Reverse the print (white character on a black background).

a=2 Fills the area with light gray tone.
a=3 Fills the area with medium gray tone.
a=4 Fills the area with high grey tone.

ESC ¦ n

Sets – Resets double width and double height print modes.

ASCII Code	ESC ¦ n
Hexadecimal Value	X'1B' X'49' n
Decimal Value	27 73 n

This command sets and resets the following print modes as follows:

n=A Resets double width and double height.
n=B Sets double width.
a=C Sets double height.
a=D Sets double width and height.

Appendix A. Code Pages

See the “ASCII Code Pages” for information about the code pages for Ethernet ASCII attachments.

You can use the following charts to determine the actual character printed for any code page and font combination.

ASCII Code Pages

The table below lists the ASCII code pages used by the S809 Printer, and also provides page references so you can determine what code page contains the characters you want to use.
These Code Pages can be found in the EPSON/IBM/ANSI emulations.

Code Page	Character Set Name
437	USA (Personal Computer) A-54
437-G	Greek
437-SL	Croatian
850	PC Multilingual
851	Old Greek
852	Latin 2/ROECE
853	Latin 3 (PC)
855	Cyrillic (PC)
857	Latin 5-Turkey + euro
858	PC Multilingual + euro
860	Portuguese
862	Hebrew
863	Canadian French
864E	Arabic
865	Danish/Norwegian
866	PC Data, Cyrillic, Russian
867	Turkish 2
876	OCR-A
877	OCR-B
1098	Farsi (Personal Computer)
1250	Central Europe Latin 2
1251	Cyrillic
1252	Latin 1 Ansi Windows
1253	Greek Windows
1254	Turkish Windows
1255	Hebrew Windows
1256	Arabic Windows
1257	Baltic Windows
MAZOWIA	Polish
GOST	Russian
TASS	Cyrillic
UKRANIAN	old version
KOI8-U	new version
FARSI 1	
FARSI 2	

Code Page	Character Set Name	Page
Kamenicky		
CWI		
Roman-8		
IN2		
Turkish		
Bulgarian		
ISO 8859-1	Latin 1	
ISO 8859/2	Latin 2	
ISO 8859/3	Latin 3	
ISO 8859/4	Latin 4	
ISO 8859-5	Latin/Cyrillic	281
ISO 8859-6	Latin/Arabic	300
ISO 8859-7	Latin/Greek	301
ISO 8859-8	Latin/Hebrew	302
ISO 8859-9	Latin 5	305
ISO 8859-15	Latin 9	308
96 GREEK		

USA (Personal Computer) A-54

Code Page 00437

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		► SM590000	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	Ç LC420000	É LE120000	á LA110000	░ SF140000	└ SF020000	╨ SF460000	α GA010000	≡ SA480000
-1	☺ SS000000	◄ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	ü LU170000	æ LA510000	í LI110000	▒ SF150000	┴ SF070000	╤ SF470000	ß LS610000	± SA020000
-2	☻ SS010000	↕ SM760000	" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	é LE110000	Æ LA520000	ó LO110000	▓ SF160000	┬ SF060000	╥ SF480000	Γ GG020000	≥ SA530000
-3	♥ SS020000	!! SP530000	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	â LA150000	ô LO150000	ú LU110000	│ SF110000	├ SF080000	╙ SF490000	π GP010000	≤ SA520000
-4	♦ SS030000	¶ SM250000	$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	ä LA170000	ö LO170000	ñ LN190000	┤ SF090000	─ SF100000	╘ SF500000	Σ GS020000	⌠ SS260000
-5	♣ SS040000	§ SM240000	% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	à LA130000	ò LO130000	Ñ LN200000	╡ SF190000	┼ SF050000	╒ SF510000	σ GS010000	⌡ SS270000
-6	♠ SS050000	▬ SM700000	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	å LA270000	û LU150000	ª SM210000	╢ SF200000	╞ SF360000	╓ SF520000	µ GM010000	÷ SA060000
-7	• SM570000	↨ SM770000	' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	ç LC410000	ù LU130000	º SM200000	╖ SF210000	╟ SF370000	╫ SF530000	τ GT010000	≈ SA700000
-8	◘ SM570001	↑ SM320000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000	ê LE150000	ÿ LY170000	¿ SP160000	╕ SF220000	╚ SF380000	╪ SF540000	Φ GF020000	° SM190000
-9	○ SM750000	↓ SM330000	) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	ë LE170000	Ö LO180000	⌐ SM680000	╣ SF230000	╔ SF390000	╘ SF040000	Θ GT620000	• SA790000
-A	◙ SM750002	→ SM310000	* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	è LE130000	Ü LU180000	¬ SM660000	╗ SF240000	╩ SF400000	╒ SF010000	Ω GO320000	· SD630000
-B	♂ SM280000	← SM300000	+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	ï LI170000	¢ SC040000	½ NF010000	╝ SF250000	╠ SF410000	■ SF610000	δ GD010000	√ SA800000
-C	♀ SM290000	∟ SA420000	, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	î LI150000	£ SC020000	¼ NF040000	╜ SF260000	╢ SF420000	▬ SF570000	∞ SA450000	ⁿ LN011000
-D	♪ SM930000	↔ SM780000	- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000	ì LI130000	¥ SC050000	¡ SP030000	╛ SF270000	═ SF430000	▌ SF580000	ϕ GF010001	² ND021000
-E	♫ SM910000	▲ SM600000	. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	Ä LA180000	₧ SC060000	« SP170000	╘ SF280000	╬ SF440000	▐ SF590000	ε GE010000	■ SM470000
-F	☼ SM690000	▼ SV040000	/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000	⌂ SM790000	Å LA280000	ƒ SC070000	» SP180000	╕ SF030000	╧ SF450000	▬ SF600000	∩ SA380000	(RSP) SP300000

Figure 2. USA(CP437)

Greek

Code Page 00437-G

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	Ø	▶		0	@	P	’	p	A	P	ι	░	└	╨	ω	o
01	☺	◀	!	1	A	Q	a	q	B	Σ	´ κ	▒	┴	╤	α	±
02	☹	≺	“	2	B	R	b	r	Γ	T	´ λ	▓	┬	╥	ε	≥
03	♥	‼	#	3	C	S	c	s	Δ	Y	´ μ	│	├	╙	η	≤
04	♦	¶	$	4	D	T	d	t	E	ϕ	ν	┤	─	╘	ι	⌠
05	♣	§	%	5	E	U	e	u	Z	X	´ ξ	╡	┼	╒	ι	⌡
06	♠	‒	&	6	F	V	f	v	H	Ψ	´ ο	╢	╞	╓	ο	÷
07	•	≼	‘	7	G	W	g	w	Θ	Ω	´ π	╖	╟	╫	υ	≈
08	◘	↑	(	8	H	X	h	x	I	α	¨ ρ	╕	╠	╪	υ	°
09	°	↓	)	9	I	Y	i	y	K	β	´ σ	╣	╦	┘	ω	£
0A	■	→	*	:	J	Z	j	z	Λ	γ	' ς	║	╩	┌	A	¥
0B	♂	←	+	;	K	[	k	{	M	δ	' τ	╗	╬	█	E	√
0C	♀	└	,	<	L	\	l	|	N	ε	υ	╝	╠	▄	H	ⁿ
0D	♪	↔	-	=	M	]	m	}	Ξ	ξ	' ♥	╝	═	▌	I	²
0E	♫	▲	.	>	N	^	n	~	O	η	' χ	╛	╬	▐	O	■
0F	☼	♦	/	?	O	_	o	⌂	Π	θ	ψ	┐	╧	▀	γ	

Figure 3.Greek(CP437-G)

Croatian

Code Page 00437-SL

	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0		0	Ž	P	ž	p	Ç	É	á	░	└	╨	α	≡
1	!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	ß	±
2	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	&	6	F	V	f	v	å	û	ª	╢	╞	╓	µ	÷
7	'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	•
A	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
B	+	;	K	Š	k	š	ï	¢	½	╗	╦	█	δ	√
C	,	<	L	Đ	l	đ	î	£	¼	╝	╠	▄	∞	ⁿ
D	-	=	M	Ć	m	ć	ì	¥	¡	╜	═	▌	ø	²
E	.	>	N	Č	n	č	Ä	₧	«	╛	╬	▐	∈	■
F	/	?	O	_	o		Å	ƒ	»	┐	╧	▀	∩	

Figure 4.Croatian(CP437-SLAVIC)

Greek/Latin (ISO 8859-7)
Code Page 00813

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0			(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000			(RSP) SP300000	° SM190000	ΐ GI730000	Π GP020000	ΰ GU730000	π GP010000
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000			‘ SP190000	± SA020000	Α GA020000	Ρ GR020000	α GA010000	ρ GR010000
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000			’ SP200000	² ND021000	Β GB020000		β GB010000	ς GS610000
-3			# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000			£ SC020000	³ ND031000	Γ GG020000	Σ GS020000	γ GG010000	σ GS010000
-4			$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000				΄ SD110000	Δ GD020000	Τ GT020000	δ GD010000	τ GT010000
-5			% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000				΄΄ SD730000	Ε GE020000	Υ GU020000	ε GE010000	υ GU010000
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000			¦ SM650000	Ά GA120000	Ζ GZ020000	Φ GF020000	ζ GZ010000	φ GF010000
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000			§ SM240000	· SD630000	Η GE320000	Χ GH020000	η GE310000	χ GH010000
-8			(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000			¨ SD170000	Έ GE120000	Θ GT620000	Ψ GP620000	ϑ GT610000	ψ GP610000
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000			© SM520000	Ή GE720000	Ι GI020000	Ω GO320000	ι GI010000	ω GO310000
-A			* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000				Ί GI120000	Κ GK020000	Ϊ GI180000	κ GK010000	ϊ GI170000
-B			+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000			« SP170000	» SP180000	Λ GL020000	Ϋ GU180000	λ GL010000	ϋ GU170000
-C			, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000			¬ SM660000	Ό GO120000	Μ GM020000	ά GA110000	μ GM010000	ό GO110000
-D			- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000			¯ (SHY) SP320000	½ NF010000	Ν GN020000	έ GE110000	ν GN010000	ύ GU110000
-E			. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000				Ύ GU120000	Ξ GX020000	ή GE710000	ξ GX010000	ώ GO710000
-F			/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000				— SM120000	Ώ GO720000	Ο GO020000	ί GI110000	ο GO010000	

Figure 5. Greek/Latin (ISO 8859-7)

Latin 1 (ISO 8859-1)

Code Page 00819

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0			(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000			(RSP) SP300000	° SM190000	À LA140000	Ð LD620000	à LA130000	ð LD630000
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000			¡ SP030000	± SA020000	Á LA120000	Ñ LN200000	á LA110000	ñ LN190000
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000			¢ SC040000	² ND021000	Â LA160000	Ò LO140000	â LA150000	ò LO130000
-3			# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000			£ SC020000	³ ND031000	Ã LA200000	Ó LO120000	ã LA190000	ó LO110000
-4			$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000			¤ SC010000	´ SD110000	Ä LA180000	Ô LO160000	ä LA170000	ô LO150000
-5			% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000			¥ SC050000	µ SM170000	Å LA280000	Õ LO200000	å LA270000	õ LO190000
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000			¦ SM650000	¶ SM250000	Æ LA520000	Ö LO180000	æ LA510000	ö LO170000
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000			§ SM240000	· SD630000	Ç LC420000	× SA070000	ç LC410000	÷ SA060000
-8			(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000			¨ SD170000	¸ SD410000	È LE140000	Ø LO620000	è LE130000	ø LO610000
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000			© SM520000	¹ ND011000	É LE120000	Ù LU140000	é LE110000	ù LU130000
-A			* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000			ª SM210000	º SM200000	Ê LE160000	Ú LU120000	ê LE150000	ú LU110000
-B			+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000			« SP170000	» SP180000	Ë LE180000	Û LU160000	ë LE170000	û LU150000
-C			, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000			¬ SM660000	¼ NF040000	Ì LI140000	Ü LU180000	ì LI130000	ü LU170000
-D			- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000			(SHY) SP320000	½ NF010000	Í LI120000	Ý LY120000	í LI110000	ý LY110000
-E			. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000			® SM530000	¾ NF050000	Î LI160000	Þ LT640000	î LI150000	þ LT630000
-F			/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000				¯ SM150000	¿ SP160000	Ï LI180000	ß LS610000	ï LI170000	ÿ LY170000

Figure 6 .ISO8859/1(Latin1)

PC Multilingual

Code Page 00850

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		► SM590000	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	Ç LC420000	É LE120000	á LA110000	░ SF140000	└ SF020000	ð LD630000	Ó LO120000	(SHY) SP320000
-1	☺ SS000000	◄ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	ü LU170000	æ LA510000	í LI110000	▒ SF150000	┴ SF070000	Ð LD620000	ß LS610000	± SA020000
-2	☻ SS010000	↕ SM760000	" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	é LE110000	Æ LA520000	ó LO110000	▓ SF160000	┬ SF060000	Ê LE160000	Ô LO160000	═ SM100000
-3	♥ SS020000	!! SP330000	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	â LA150000	ô LO150000	ú LU110000	│ SF110000	├ SF080000	Ë LE180000	Ò LO140000	¾ NF050000
-4	♦ SS030000	¶ SM250000	$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	ä LA170000	ö LO170000	ñ LN190000	┤ SF090000	─ SF100000	È LE140000	õ LO190000	¶ SM250000
-5	♣ SS040000	§ SM240000	% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	à LA130000	ò LO130000	Ñ LN200000	Á LA120000	┼ SF050000	ı LI610000	Õ LO200000	§ SM240000
-6	♠ SS050000	▬ SM700000	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	å LA270000	û LU150000	ª SM210000	Â LA160000	ã LA190000	Í LI120000	µ SM170000	÷ SA060000
-7	• SM570000	↨ SM770000	' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	ç LC410000	ù LU130000	º SM200000	À LA140000	Ã LA200000	Î LI160000	þ LT630000	¸ SD410000
-8	◘ SM570001	↑ SM320000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000	ê LE150000	ÿ LY170000	¿ SP160000	© SM520000	╚ SF380000	Ï LI180000	Þ LT640000	° SM190000
-9	○ SM750000	↓ SM330000	) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	ë LE170000	Ö LO180000	® SM530000	╣ SF230000	╗ SF390000	┘ SF040000	Ú LU120000	¨ SD170000
-A	◙ SM750002	→ SM310000	* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	è LE130000	Ü LU180000	¬ SM660000	╢ SF240000	╩ SF400000	┌ SF010000	Û LU160000	· SD630000
-B	♂ SM280000	← SM300000	+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	ï LI170000	ø LO610000	½ NF010000	╖ SF250000	╦ SF410000	█ SF610000	Ù LU140000	¹ ND011000
-C	♀ SM290000	∟ SA420000	, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	î LI150000	£ SC020000	¼ NF040000	╕ SF260000	╠ SF420000	▄ SF570000	ý LY110000	³ ND031000
-D	♪ SM930000	↔ SM780000	- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000	ì LI130000	Ø LO620000	¡ SP030000	¢ SC040000	═ SF430000	¦ SM650000	Ý LY120000	² ND021000
-E	♫ SM910000	▲ SM600000	. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	Ä LA180000	× SA070000	« SP170000	¥ SC050000	╬ SF440000	Ì LI140000	¯ SM150000	■ SM470000
-F	☼ SM690000	▼ SV040000	/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000	⌂ SM790000	Å LA280000	ƒ SC070000	» SP180000	╓ SF030000	¤ SC010000	▬ SF600000	´ SD110000	(RSP) SP300000

Figure 7.Multilingual(CP850)

Old Greek

Code Page 00851

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		► SM590000	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	Ç LC420000	Ί GI120000	ΐ GI170000	SF140000	SF020000	T GT020000	ζ GZ010000	(SHY) SP320000
-1	☺ SS000000	◄ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	ü LU170000		ΐ GI730000	SF150000	SF070000	Y GU020000	η GE310000	± SA020000
-2	☻ SS010000	↕ SM760000	" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	é LE110000	Ό GO120000	ό GO110000	SF160000	SF060000	Φ GF020000	ϑ GT610000	υ GU010000
-3	♥ SS020000	!! SP330000	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	â LA150000	ô LO150000	ύ GU110000	SF110000	SF080000	X GH020000	ι GI010000	φ GF010000
-4	♦ SS030000	¶ SM250000	$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	ä LA170000	ö LO170000	Α GA020000	SF090000	SF100000	Ψ GP620000	κ GK010000	χ GH010000
-5	♣ SS040000	§ SM240000	% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	à LA130000	Ύ GU120000	Β GB020000	Κ GK020000	SF050000	Ω GO320000	λ GL010000	§ SM240000
-6	♠ SS050000	▬ SM700000	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	Ά GA120000	û LU150000	Γ GG020000	Λ GL020000	Π GP020000	α GA010000	μ GM010000	ψ GP610000
-7	• SM570000	↨ SM770000	' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	ç LC410000	ù LU130000	Δ GD020000	Μ GM020000	Ρ GR020000	β GB010000	ν GN010000	΄ SD410000
-8	◘ SM570001	↑ SM320000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000	ê LE150000	Ώ GO720000	Ε GE020000	Ν GN020000	SF380000	γ GG010000	ξ GX010000	° SM190000
-9	○ SM750000	↓ SM330000	) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	ë LE170000	Ό GO180000	Ζ GZ020000	SF230000	SF390000	SF040000	ο GO010000	¨ SD170000
-A	◙ SM750002	→ SM310000	* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	è LE130000	Ü LU180000	Η GE320000	SF240000	SF400000	SF010000	π GP010000	ω GO310000
-B	♂ SM280000	← SM300000	+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	ï LI170000	ά GA110000	½ NF010000	SF250000	SF410000	SF610000	ρ GR010000	ϋ GU170000
-C	♀ SM290000	∟ SA420000	, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	î LI150000	£ SC020000	Θ GT620000	SF260000	SF420000	SF570000	σ GS010000	ύ GU130000
-D	♪ SM930000	↔ SM780000	- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000	Έ GE120000	έ GE110000	Ι GI020000	Ξ GX020000	SF430000	δ GD010000	ς GS610000	ώ GO710000
-E	♫ SM910000	▲ SM600000	. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	Ä LA180000	ή GE710000	« SP170000	Ο GO020000	SF440000	ε GE010000	τ GT010000	■ SM470000
-F	☼ SM690000	▼ SV040000	/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000	⌂ SM790000	Ή GE720000	ί GI110000	» SP180000	SF030000	Σ GS020000	SF600000	' SD110000	(RSP) SP300000

Figure 8.Old Greek(CP851)

Latin 2/ROECE

Code Page 00852

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		► SM590000	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	Ç LC420000	É LE120000	á LA110000	░ SF140000	└ SF020000	đ LD610000	Ó LO120000	(SHY) SP320000
-1	☺ SS000000	◄ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	ü LU170000	Ĺ LL120000	í LI110000	▒ SF150000	┴ SF070000	Đ LD620000	ß LS610000	″ SD250000
-2	☻ SS010000	↕ SM760000	" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	é LE110000	Í LL110000	ó LO110000	▓ SF160000	┬ SF060000	Ď LD220000	Ô LO160000	˛ SD430000
-3	♥ SS020000	!! SP330000	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	â LA150000	ô LO150000	ú LU110000	│ SF110000	├ SF080000	Ë LE180000	Ň LN120000	ˇ SD210000
-4	♦ SS030000	¶ SM250000	$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	ä LA170000	ö LO170000	Ą LA440000	┤ SF090000	─ SF100000	ď LD210000	ń LN110000	˘ SD230000
-5	♣ SS040000	§ SM240000	% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	ů LU270000	Ľ LL220000	ą LA430000	Á LA120000	┼ SF050000	Ň LN220000	ň LN210000	§ SM240000
-6	♠ SS050000	▬ SM700000	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	ć LC110000	ľ LL210000	Ž LZ220000	Â LA160000	Ă LA240000	Í LI120000	Š LS220000	÷ SA060000
-7	• SM570000	↨ SM770000	' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	ç LC410000	Ś LS120000	ž LZ210000	Ě LE220000	ă LA230000	Î LI160000	š LS210000	¸ SD410000
-8	◘ SM570001	↑ SM320000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000	ł LL610000	ś LS110000	Ę LE440000	Ş LS420000	╚ SF380000	ě LE210000	Ŕ LR120000	° SM190000
-9	○ SM750000	↓ SM330000	) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	ë LE170000	Ö LO180000	ę LE430000	╣ SF230000	╗ SF390000	┘ SF040000	Ú LU120000	¨ SD170000
-A	◙ SM750002	→ SM310000	* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	Ő LO260000	Ü LU180000		╢ SF240000	╩ SF400000	┌ SF010000	ŕ LR110000	˙ SD290000
-B	♂ SM280000	← SM300000	+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	ő LO250000	Ť LT220000	ź LZ110000	╖ SF250000	╦ SF410000	╗ SF610000	Ű LU260000	ű LU250000
-C	♀ SM290000	∟ SA420000	, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	î LI150000	ť LT210000	Č LC220000	╝ SF260000	╠ SF420000	▬ SF570000	ý LY110000	Ř LR220000
-D	♪ SM930000	↔ SM780000	- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000	Ź LZ120000	Ł LL620000	ş LS410000	Ż LZ300000	═ SF430000	Ţ LT420000	Ý LY120000	ř LR210000
-E	♫ SM910000	▲ SM600000	. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	Ä LA180000	× SA070000	« SP170000	ż LZ290000	╬ SF440000	Ů LU280000	ţ LT410000	■ SM470000
-F	☼ SM690000	▼ SV040000	/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000	⌂ SM790000	Ć LC120000	č LC210000	» SP180000	╕ SF030000	¤ SC010000	▬ SF600000	´ SD110000	(RSP) SP300000

Figure 9.EasternEurope(CP852)

Latin 3 (PC)

Code Page 00853

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		► SM590000	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	Ç LC420000	É LE120000	á LA110000	░ SF140000	└ SF020000		Ó LO120000	(SHY) SP320000
-1	☺ SS000000	◄ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	ü LU170000	ċ LC290000	í LI110000	▒ SF150000	┴ SF070000		ß LS610000	
-2	☻ SS010000	↕ SM760000	" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	é LE110000	Ċ LC300000	ó LO110000	▓ SF160000	┬ SF060000	Ê LE160000	Ô LO160000	ℓ SM160000
-3	♥ SS020000	!! SP330000	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	â LA150000	ô LO150000	ú LU110000	│ SF110000	├ SF080000	Ë LE180000	Ò LO140000	ʼn LN630000
-4	♦ SS030000	¶ SM250000	$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	ä LA170000	ö LO170000	ñ LN190000	┤ SF090000	─ SF100000	È LE140000	Ġ LG300000	˘ SD230000
-5	♣ SS040000	§ SM240000	% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	à LA130000	ò LO130000	Ñ LN200000	Á LA120000	┼ SF050000	ı LI610000	ġ LG290000	§ SM240000
-6	♠ SS050000	▬ SM700000	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	ê LC150000	û LU150000	Ğ LG240000	Â LA160000	Ŝ LS160000	Í LI120000	µ SM170000	÷ SA060000
-7	• SM570000	↨ SM770000	' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	ç LC410000	ù LU130000	ğ LG230000	À LA140000	ŝ LS150000	Î LI160000	Ħ LH620000	¸ SD410000
-8	◘ SM570001	↑ SM320000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000	ê LE150000	İ LI300000	Ĥ LH160000	Ş LS420000	╚ SF380000	Ï LI180000	ħ LH610000	° SM190000
-9	○ SM750000	↓ SM330000	) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	ë LE170000	Ö LO180000	ĥ LH150000	╣ SF230000	╔ SF390000	┘ SF040000	Ú LU120000	¨ SD170000
-A	◙ SM750002	→ SM310000	* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	è LE130000	Ü LU180000		╢ SF240000	╩ SF400000	┌ SF010000	Û LU160000	· SD290000
-B	♂ SM280000	← SM300000	+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	ï LI170000	ĝ LG150000	½ NF010000	╖ SF250000	╦ SF410000	■ SF610000	Ù LU140000	
-C	♀ SM290000	∟ SA420000	, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	î LI150000	£ SC020000	Ĵ LJ160000	╝ SF260000	╠ SF420000	▬ SF570000	Ŭ LU240000	3 ND031000
-D	♪ SM930000	↔ SM780000	- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000	ì LI130000	Ĝ LG160000	ş LS410000	Ż LZ300000	═ SF430000		ŭ LU230000	2 ND021000
-E	♫ SM910000	▲ SM600000	. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	Ä LA180000	× SA070000	« SP170000	ż LZ290000	╬ SF440000	Ì LI140000	• SD630000	■ SM470000
-F	☼ SM690000	▼ SV040000	/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000	⌂ SM790000	Ĉ LC160000	ĵ LJ150000	» SP180000	╕ SF030000	¤ SC010000	▬ SF600000	´ SD110000	(RSP) SP300000

Figure 10.Turkish(CP853)

Cyrillic (PC)

Code Page 00855

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		► SM590000	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	ђ KD610000	Љ KL410000	а KA010000	░ SF140000	└ SP020000	л KL010000	Я KA160000	(SHY) SP320000
-1	☺ SS000000	◄ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	Ђ KD620000	Л KL420000	А KA020000	▒ SF150000	┴ SP070000	Л KL020000	р KR010000	ы KY010000
-2	☻ SS010000	↕ SM760000	" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	ѓ KG110000	Нь KN110000	б KB010000	▓ SF160000	┬ SP060000	м KM010000	Р KR020000	Ы KY020000
-3	♥ SS020000	!! SP330000	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	Ѓ KG120000	Нь KN120000	Б KB020000	│ SF110000	├ SP080000	М KM020000	с KS010000	з KZ010000
-4	♦ SS030000	¶ SM250000	$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	ё KE170000	ћ KC110000	ц KC010000	┤ SF090000	─ SP100000	н KN010000	С KS020000	З KZ020000
-5	♣ SS040000	§ SM240000	% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	Ё KE180000	Ћ KC120000	Ц KC020000	х KH010000	┼ SP050000	Н KN020000	т KT010000	ш KS210000
-6	♠ SS050000	▬ SM700000	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	є KE150000	ќ KK110000	д KD010000	Х KH020000	к KK010000	о KO010000	Т KT020000	Ш KS220000
-7	• SM570000	↨ SM770000	' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	Є KE160000	Ќ KK120000	Д KD020000	и KI010000	К KK020000	О KO020000	у KU010000	э KE130000
-8	◘ SM570001	↑ SM320000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000	s KZ150000	ў KU230000	е KE010000	И KI020000	╚ SF380000	п KP010000	У KU020000	Э KE140000
-9	○ SM750000	↓ SM330000	) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	S KZ160000	Ў KU240000	Е KE020000	╣ SF230000	╔ SF390000	┘ SP040000	ж KZ210000	щ KS150000
-A	◙ SM750002	→ SM310000	* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	і KI110000	ц KG210000	ф KF010000	║ SF240000	╩ SF400000	┌ SP010000	Ж KZ220000	Щ KS160000
-B	♂ SM280000	← SM300000	+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	І KI120000	Ц KG220000	Ф KF020000	╗ SF250000	╦ SF410000	SF610000	в KV010000	ч KC210000
-C	♀ SM290000	∟ SA420000	, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	ї KI170000	ю KU150000	г KG010000	╝ SF260000	╠ SF420000	SF570000	В KV020000	Ч KC220000
-D	♪ SM930000	↔ SM780000	- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000	Ї KI180000	Ю KU160000	Г KG020000	й KJ110000	═ SF430000	П KP020000	ь KX110000	§ SM240000
-E	♫ SM910000	▲ SM600000	. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	j KJ010000	ъ KU210000	« SP170000	Й KJ120000	╬ SF440000	я KA150000	Ь KX120000	■ SM470000
-F	☼ SM690000	▼ SV040000	/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000	⌂ SM790000	J KJ020000	Ъ KU220000	» SP180000	┐ SF030000	¤ SC010000	SF600000	№ SM000000	(RSP) SP300000

Figure 11.Cyrillic(CP855)

Latin 5-Turkey + euro

Code Page 00857

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		► SM590000	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	Ç LC420000	É LE120000	á LA110000	▒ SF140000	└ SF020000	º SM200000	Ó LO120000	(SHY) SP320000
-1	☺ SS000000	◄ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	ü LU170000	æ LA510000	í LI110000	▓ SF150000	┴ SF070000	ª SM210000	ß LS610000	± SA020000
-2	☻ SS010000	↕ SM760000	" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	é LE110000	Æ LA520000	ó LO110000	▓ SF160000	┬ SF060000	Ê LE160000	Ô LO160000	
-3	♥ SS020000	!! SP330000	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	â LA150000	ô LO150000	ú LU110000	│ SF110000	├ SF080000	Ë LE180000	Ò LO140000	¾ NF050000
-4	♦ SS030000	¶ SM250000	$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	ä LA170000	ö LO170000	ñ LN190000	┤ SF090000	─ SF100000	È LE140000	õ LO190000	¶ SM250000
-5	♣ SS040000	§ SM240000	% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	à LA130000	ò LO130000	Ñ LN200000	Á LA120000	┼ SF050000	€ SC200000	Õ LO200000	§ SM240000
-6	♠ SS050000	▬ SM700000	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	å LA270000	û LU150000	Ğ LG240000	Â LA160000	ã LA190000	Í LI120000	µ SM170000	÷ SA060000
-7	• SM570000	↨ SM770000	' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	ç LC410000	ù LU130000	ğ LG230000	À LA140000	Ã LA200000	Î LI160000		¸ SD410000
-8	◘ SM570001	↑ SM320000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000	ê LE150000	Ì LI300000	¿ SP160000	© SM520000	╚ SF380000	Ï LI180000	× SA070000	° SM190000
-9	○ SM750000	↓ SM330000	) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	ë LE170000	Ö LO180000	® SM530000	╣ SF230000	╔ SF390000	┘ SF040000	Ú LU120000	¨ SD170000
-A	◙ SM750002	→ SM310000	* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	è LE130000	Ü LU180000	¬ SM660000	╢ SF240000	╩ SF400000	┌ SF010000	Û LU160000	· SD630000
-B	♂ SM280000	← SM300000	+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	ï LI170000	ø LO610000	½ NF010000	╖ SF250000	╦ SF410000	■ SF610000	Ù LU140000	1 ND011000
-C	♀ SM290000	∟ SA420000	, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	î LI150000	£ SC020000	¼ NF040000	╝ SF260000	╠ SF420000	▬ SF570000	ì LI130000	3 ND031000
-D	♪ SM930000	↔ SM780000	- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000	ı LI610000	Ø LO620000	¡ SP030000	¢ SC040000	═ SF430000	¦ SM650000	ÿ LY170000	2 ND021000
-E	♫ SM910000	▲ SM600000	. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	Ä LA180000	Ş LS420000	« SP170000	¥ SC050000	╬ SF440000	Ì LI140000	¯ SM150000	■ SM470000
-F	☼ SM690000	▼ SV040000	/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000	⌂ SM790000	Å LA280000	ş LS410000	» SP180000	╗ SF030000	¤ SC010000	▬ SF800000	´ SD110000	(RSP) SP300000

Figure 12.Turkish(CP857)

PC Multilingual + euro

Code Page 00858

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		► SM590000	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	Ç LC420000	É LE120000	á LA110000	░ SF140000	└ SF020000	ð LD630000	Ó LO120000	(SHY) SP320000
-1	☺ SS000000	◄ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	ü LU170000	æ LA510000	í LI110000	▒ SF150000	┴ SF070000	Ð LD620000	ß LS610000	± SA020000
-2	☻ SS010000	↕ SM760000	" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	é LE110000	Æ LA520000	ó LO110000	▓ SF160000	┬ SF050000	Ê LE160000	Ô LO160000	‗ SM100000
-3	♥ SS020000	!! SP330000	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	â LA150000	ô LO150000	ú LU110000	│ SF110000	├ SF080000	Ë LE180000	Ò LO140000	¾ NF060000
-4	♦ SS030000	¶ SM250000	$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	ä LA170000	ö LO170000	ñ LN190000	┤ SF090000	─ SF100000	È LE140000	õ LO190000	¶ SM250000
-5	♣ SS040000	§ SM240000	% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	à LA130000	ò LO130000	Ñ LN200000	Á LA120000	┼ SF060000	€ SC200000	Õ LO200000	§ SM240000
-6	♠ SS050000	▬ SM700000	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	å LA270000	û LU150000	ª SM210000	Â LA160000	ã LA190000	Í LI120000	µ SM170000	÷ SA060000
-7	• SM570000	↨ SM770000	' SP060000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	ç LC410000	ù LU130000	º SM200000	À LA140000	Ã LA200000	Î LI160000	þ LT630000	¸ SD410000
-8	◘ SM570001	↑ SM320000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000	ê LE150000	ÿ LY170000	¿ SP160000	© SM520000	╚ SF380000	Ï LI180000	Þ LT640000	° SM190000
-9	○ SM750000	↓ SM330000	) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	ë LE170000	Ö LO180000	® SM530000	╣ SF230000	╔ SF390000	╝ SF040000	Ú LU120000	¨ SD170000
-A	◙ SM750002	→ SM310000	* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	è LE130000	Ü LU180000	¬ SM660000	╢ SF240000	╩ SF400000	╒ SF010000	Û LU160000	· SD630000
-B	♂ SM280000	← SM300000	+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	ï LI170000	ø LO610000	½ NF010000	╖ SF250000	╦ SF410000	■ SF610000	Ù LU140000	¹ ND011000
-C	♀ SM290000	∟ SA420000	, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	î LI150000	£ SC020000	¼ NF040000	╜ SF260000	╠ SF420000	▬ SF570000	ý LY110000	³ ND031000
-D	♪ SM930000	↔ SM780000	- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000	ì LI130000	Ø LO620000	¡ SP030000	¢ SC040000	═ SF430000	╎ SM650000	Ý LY120000	² ND021000
-E	♫ SM910000	▲ SM600000	. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	Ä LA180000	× SA070000	« SP170000	¥ SC050000	╬ SF440000	Ì LI140000	¯ SM150000	■ SM470000
-F	☼ SM690000	▼ SV040000	/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000	⌂ SM790000	Å LA280000	ƒ SC070000	» SP180000	╕ SF030000	¤ SC010000	▬ SF600000	´ SD110000	(RSP) SP300000

Figure 13.EuroPCMultilingual(CP858).

Portuguese

Code Page 00860

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		► SM590000	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	Ç LC420000	É LE120000	á LA110000	░ SF140000	└ SF020000	╨ SF460000	α GA010000	≡ SA480000
-1	☺ SS000000	◄ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	ü LU170000	À LA140000	í LI110000	▒ SF150000	┴ SF070000	╤ SF470000	ß LS610000	± SA020000
-2	☻ SS010000	↕ SM760000	" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	é LE110000	È LE140000	ó LO110000	▓ SF160000	┬ SF060000	╥ SF480000	Γ GG020000	≥ SA530000
-3	♥ SS020000	!! SP330000	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	â LA150000	ô LO150000	ú LU110000	│ SF110000	├ SF080000	╙ SF490000	π GP010000	≤ SA520000
-4	♦ SS030000	¶ SM250000	$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	ã LA190000	õ LO190000	ñ LN190000	┤ SF090000	─ SF100000	╘ SF500000	Σ GS020000	⌠ SS260000
-5	♣ SS040000	§ SM240000	% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	à LA130000	ò LO130000	Ñ LN200000	╡ SF190000	┼ SF050000	╒ SF510000	σ GS010000	⌡ SS270000
-6	♠ SS050000	▬ SM700000	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	Á LA120000	Ú LU120000	ª SM210000	╢ SF200000	╞ SF360000	╓ SF520000	µ GM010000	÷ SA060000
-7	• SM570000	↨ SM770000	' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	ç LC410000	ù LU130000	º SM200000	╖ SF210000	╟ SF370000	╫ SF530000	τ GT010000	≈ SA700000
-8	◘ SM570001	↑ SM320000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000	ê LE150000	Ì LI140000	¿ SP160000	╕ SF220000	╚ SF380000	╪ SF540000	Φ GF020000	° SM190000
-9	○ SM750000	↓ SM330000	) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	Ê LE160000	Õ LO200000	Ò LO140000	╣ SF230000	╔ SF390000	┘ SF040000	Θ GT620000	• SA790000
-A	◙ SM750002	→ SM310000	* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	è LE130000	Ü LU180000	¬ SM660000	║ SF240000	╩ SF400000	┌ SF010000	Ω GO320000	· SD630000
-B	♂ SM280000	← SM300000	+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	Í LI120000	¢ SC040000	½ NF010000	╗ SF250000	╦ SF410000	█ SF610000	δ GD010000	√ SA800000
-C	♀ SM290000	∟ SA420000	, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	Ô LO160000	£ SC020000	¼ NF040000	╝ SF260000	╠ SF420000	▬ SF570000	∞ SA450000	ⁿ LN011000
-D	♪ SM930000	↔ SM780000	- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000	ì LI130000	Ù LU140000	¡ SP030000	╜ SF270000	═ SF430000	▌ SF580000	ϕ GF010001	² ND021000
-E	♫ SM910000	▲ SM600000	. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	Ã LA200000	₧ SC060000	« SP170000	╛ SF280000	╬ SF440000	▐ SF590000	ε GE010000	■ SM470000
-F	☼ SM690000	▼ SV040000	/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000	⌂ SM790000	Â LA160000	Ó LO120000	» SP180000	┐ SF030000	╧ SF450000	▬ SF600000	∩ SA380000	(RSP) SP300000

Figure 14.Portugal(CP860)

Hebrew

Code Page 00862

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		► SM590000	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	א HX330000	נ HN010000	á LA110000	░ SF140000	└ SF020000	╨ SF460000	α GA010000	≡ SA480000
-1	☺ SS000000	◄ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	ב HB010000	ס HS010000	í LI110000	▒ SF150000	┴ SF070000	╤ SF470000	ß LS610000	± SA020000
-2	☻ SS010000	↕ SM760000	" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	ג HG010000	ע HX350000	ó LO110000	▓ SF160000	┬ SF060000	╥ SF480000	Γ GG020000	≥ SA530000
-3	♥ SS020000	!! SP330000	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	ד HD010000	ף HP610000	ú LU110000	│ SF110000	├ SF080000	╙ SF490000	π GP010000	≤ SA520000
-4	♦ SS030000	¶ SM250000	$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	ה HH010000	פ HP010000	ñ LN190000	┤ SF090000	─ SF100000	╘ SF500000	Σ GS020000	∫ SS260000
-5	♣ SS040000	§ SM240000	% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	ו HW010000	ץ HS610000	Ñ LN200000	╡ SF190000	┼ SF050000	╒ SF510000	σ GS010000	⌠ SS270000
-6	♠ SS050000	▬ SM700000	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	ז HZ010000	צ HS450000	ª SM210000	╢ SF200000	╞ SF360000	╓ SF520000	µ GM010000	÷ SA060000
-7	• SM570000	↨ SM770000	' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	ח HH450000	ק HQ010000	º SM200000	╖ SF210000	╟ SF370000	╫ SF530000	τ GT010000	≈ SA700000
-8	◘ SM570001	↑ SM320000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000	ט HT450000	ר HR010000	¿ SP160000	╕ SF220000	╠ SF380000	╪ SF540000	Φ GP020000	° SM190000
-9	○ SM750000	↓ SM330000	) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	י HY010000	ש HS210000	⌐ SM680000	╣ SF230000	╩ SF390000	╘ SF040000	Θ GT620000	• SA790000
-A	◙ SM750002	→ SM310000	* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	ך HK610000	ת HT010000	¬ SM660000	╢ SF240000	╧ SF400000	╒ SF010000	Ω GO320000	· SD630000
-B	♂ SM280000	← SM300000	+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	כ HK010000	¢ SC040000	½ NF010000	╕ SF250000	╤ SF410000	■ SF610000	δ GD010000	√ SA800000
-C	♀ SM290000	∟ SA420000	, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	ל HL010000	£ SC020000	¼ NF040000	╜ SF260000	╞ SF420000	▬ SF570000	∞ SA450000	ⁿ LN011000
-D	♪ SM930000	↔ SM780000	- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000	ם HM610000	¥ SC050000	¡ SP030000	╛ SF270000	═ SF430000	▌ SF580000	ϕ GF010001	² ND021000
-E	♫ SM910000	▲ SM600000	. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	מ HM010000	₧ SC060000	« SP170000	╘ SF280000	╬ SF440000	▐ SF590000	ε GE010000	■ SM470000
-F	☼ SM690000	▼ SV040000	/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000	⌂ SM790000	ן HN610000	ƒ SC070000	» SP180000	┐ SF030000	╧ SF450000	▬ SF600000	∩ SA380000	(RSP) SP300000

Figure 15.Hebrew(CP862)

Canadian French

Code Page 00863

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		► SM590000	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	Ç LC420000	É LE120000	¦ SM650000	░ SF140000	└ SF020000	╨ SF460000	α GA010000	≡ SA480000
-1	☺ SS000000	◄ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	ü LU170000	È LE140000	´ SD110000	▒ SF150000	┴ SF070000	╤ SF470000	ß LS610000	± SA020000
-2	☻ SS010000	↕ SM760000	" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	é LE110000	Ê LE160000	ó LO110000	▓ SF160000	┬ SF060000	╥ SF480000	Γ GG020000	≥ SA530000
-3	♥ SS020000	!! SP330000	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	â LA150000	ô LO150000	ú LU110000	│ SF110000	├ SF080000	╙ SF490000	π GP010000	≤ SA520000
-4	♦ SS030000	¶ SM250000	$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	Â LA160000	Ë LE180000	¨ SD170000	┤ SF090000	─ SF100000	╘ SF500000	Σ GS020000	⌠ SS260000
-5	♣ SS040000	§ SM240000	% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	à LA130000	Ï LI180000	¸ SD410000	╡ SF190000	┼ SF050000	╒ SF510000	σ GS010000	⌡ SS270000
-6	♠ SS050000	▬ SM700000	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	¶ SM250000	û LU150000	³ ND031000	╢ SF200000	╞ SF360000	╓ SF520000	µ GM010000	÷ SA060000
-7	• SM570000	↨ SM770000	' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	ç LC410000	ù LU130000	¯ SM150000	╖ SF210000	╟ SF370000	╫ SF530000	τ GT010000	≈ SA700000
-8	◘ SM570001	↑ SM320000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000	ê LE150000	¤ SC010000	Î LI160000	╕ SF220000	╚ SF380000	╪ SF540000	Φ GF020000	° SM190000
-9	○ SM750000	↓ SM330000	) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	ë LE170000	Ô LO160000	⌐ SM680000	╣ SF230000	╔ SF390000	╘ SF040000	Θ GT620000	• SA790000
-A	◙ SM750002	→ SM310000	* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	è LE130000	Ü LU180000	¬ SM660000	║ SF240000	╩ SF400000	╒ SF010000	Ω GO320000	· SD630000
-B	♂ SM280000	← SM300000	+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	ï LI170000	¢ SC040000	½ NF010000	╗ SF250000	╦ SF410000	■ SF610000	δ GD010000	√ SA800000
-C	♀ SM290000	∟ SA420000	, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	î LI150000	£ SC020000	¼ NF040000	╝ SF260000	╠ SF420000	▬ SF570000	∞ SA450000	ⁿ LN011000
-D	♪ SM930000	↔ SM780000	- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000	═ SM100000	Ù LU140000	¾ NF050000	╜ SF270000	═ SF430000	▌ SF580000	ϕ GF010001	² ND021000
-E	♫ SM910000	▲ SM600000	. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	À LA140000	Û LU160000	« SP170000	╛ SF280000	╬ SF440000	▐ SF590000	ε GE010000	■ SM470000
-F	☼ SM690000	▼ SV040000	/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000	⌂ SM790000	§ SM240000	ƒ SC070000	» SP180000	┐ SF030000	╧ SF450000	▬ SF600000	∩ SA380000	(RSP) SP300000

Figure 16.Canada/France(CP863)

Arabic

Code Page 00864

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		► SM590000	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	° SM190000	β GB010000	(RSP) SP300000	٠ ND100001	¢ SC040000	ذ AD470000	ـ SM860000	ّ AX100004
-1	☺ SS000000	◄ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	· SD630000	∞ SA450000	(SHY) SP320000	١ ND010001	ه AX300000	ر AR010000	ف AF010003	ّ AX100001
-2	♪ SM930000	↕ SM760000	" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	• SA790000	ϕ GF010001	آ AA210002	٢ ND020001	آ AA210000	ز AZ010000	ق AQ010003	ن AN010000
-3	♫ SM910000	!! SP330000	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	√ SA800000	± SA020000	£ SC020000	٣ ND030001	أ AA310000	س AS010003	ك AK010003	ه AH010000
-4	☼ SM690000	¶ SM250000	$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	▒ SF150000	½ NF010000	¤ SC010000	٤ ND040001	ؤ AW310000	ش AS230003	ل AL010003	ة AH010004
-5	═ SF430000	§ SM240000	٪ SM020007	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	─ SF100000	¼ NF040000	ٱ AA310002	٥ ND050001	ع AC470002	ص AS450003	ـ AM010003	ى AA020002
-6	╢ SF240000	━ SM700000	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	│ SF110000	≈ SA700000		٦ ND060001	ك AY310000	ض AD450003	ن AN010003	ي AY010002
-7	╬ SF440000	↨ SM770000	' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	┼ SF050000	« SP170000		٧ ND070001	ا AA010000	ط AT450000	ه AH010003	غ AG310004
-8	╣ SF230000	↑ SM320000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000	┤ SF090000	» SP180000	ٱ AA010002	٨ ND080001	ب AB010003	ظ AZ450000	و AW010000	ق AQ010000
-9	╗ SF410000	↓ SM330000	) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	┬ SF060000	لأ AL320000	ب AB010000	٩ ND090001	ة AT020000	ع AC470003	ى AA020000	لآ AL220000
-A	╠ SF420000	→ SM310000	* SM040007	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	├ SF080000	لأ AL320003	ت AT010000	ف AF010000	ت AT010003	غ AG310003	ب AY010003	لآ AL220003
-B	╝ SF400000	← SM300000	+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	┴ SF070000		ث AT470000	؛ SP140007	ث AT470003	! SM650000	ض AD450000	ل AL010000
-C	╜ SF250000	∟ SA420000	, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	┐ SF030000		، SP080007	س AS010000	ج AG230003	¬ SM660000	ـ AC470004	ك AK010000
-D	╓ SF390000	↔ SM780000	- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000	┌ SF010000	لا AL020000	ج AG230000	ش AS230000	ح AH450003	÷ SA060000	غ AG310002	ي AY010000
-E	╙ SF380000	▲ SM600000	. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	└ SF020000	لا AL020003	ح AH450000	ص AS450000	خ AH470003	× SA070000	غ AG310000	■ SM470000
-F	╛ SF260000	▼ SV040000	/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000	⌂ SM790000	┘ SF040000	، SM870000	ح AH470000	؟ SP150007	د AD010000	ع AC470000	م AM010000	

Figure 17.Arabic(CP864)

Arabic

Code Page 00864E

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	∅	►		0	@	P	`	p	°	،		٠	¢	ذ	ـ	ّ
01	☺	◄	!	1	A	Q	a	q	•	∞	–	١	ء	ر	ف	٠
02	☻	↕	"	2	B	R	b	r	·	·	٬	٢	آ	ز	ق	ن
03	♥	‼	#	3	C	S	c	s	√	±	£	٣	أ	س	ك	ه
04	♦	¶	$	4	D	T	d	t	≤	½	¤	٤	ؤ	ش	ل	و
05	♣	§	%	5	E	U	e	u	≥	¼	¦	٥	إ	ص	م	ى
06	♠	▬	&	6	F	V	f	v	÷	≈	⁄	٦	ئ	ض	ن	ي
07	•	↨	'	7	G	W	g	w	×	٪	⁄	٧	ا	ط	هـ	ء
08	◘	↑	(	8	H	X	h	x	∙	٪	⁄	٨	ب	ظ	و	ق
09	○	↓	)	9	I	Y	i	y	⁄	⁄	⁄	٩	ة	ع	ى	ﻻ
0A	◙	→	*	:	J	Z	j	z	∙	⁄	⁄	⁄	ت	غ	ب	ﻻ
0B	♂	←	+	;	K	[	k	{	⁄	⁄	⁄	⁄	ث	؛	ف	ل
0C	♀	∟	,	<	L	\	l	|	⁄	⁄	⁄	⁄	ج	٬	ص	ك
0D	♪	↔	–	=	M	]	m	}	⁄	⁄	⁄	⁄	ح	÷	خ	ي
0E	♫	▲	.	>	N	^	n	~	⁄	⁄	⁄	⁄	خ	×	غ	ً
0F	☼	▼	/	?	O	_	o	⌂	⁄	⁄	⁄	⁄	د	ع	م	

Figure 18.CP864E(Arabic)

Danish/Norwegian

Code Page 00865

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		► SM590000	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	Ç LC420000	É LE120000	á LA110000	░ SF140000	└ SP020000	╨ SF460000	α GA010000	≡ SA480000
-1	☺ SS000000	◄ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	ü LU170000	æ LA510000	í LI110000	▒ SF150000	┴ SP070000	╤ SF470000	ß LS610000	± SA020000
-2	☻ SS010000	↕ SM760000	" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	é LE110000	Æ LA520000	ó LO110000	▓ SF160000	┬ SP060000	╥ SF480000	Γ GG020000	≥ SA530000
-3	♥ SS020000	!! SP330000	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	â LA150000	ô LO150000	ú LU110000	│ SF110000	├ SP080000	╙ SF490000	π GP010000	≤ SA520000
-4	♦ SS030000	¶ SM250000	$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	ä LA170000	ö LO170000	ñ LN190000	┤ SF090000	─ SF100000	╘ SF500000	Σ GS020000	⌠ SS260000
-5	♣ SS040000	§ SM240000	% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	à LA130000	ò LO130000	Ñ LN200000	╡ SF190000	┼ SF050000	╒ SF510000	σ GS010000	⌡ SS270000
-6	♠ SS050000	▬ SM700000	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	å LA270000	û LU150000	ª SM210000	╢ SF200000	╞ SF360000	╓ SF520000	µ GM010000	÷ SA060000
-7	• SM570000	↨ SM770000	' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	ç LC410000	ù LU130000	º SM200000	╖ SF210000	╟ SF370000	╫ SF530000	τ GT010000	≈ SA700000
-8	◘ SM570001	↑ SM320000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000	ê LE150000	ÿ LY170000	¿ SP160000	╕ SF220000	╚ SF380000	╪ SF540000	Φ GP020000	° SM190000
-9	○ SM750000	↓ SM330000	) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	ë LE170000	Ö LO180000	⌐ SM680000	╣ SF230000	╔ SF390000	┘ SF040000	Θ GT620000	• SA790000
-A	◙ SM750002	→ SM310000	* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	è LE130000	Ü LU180000	¬ SM660000	║ SF240000	╩ SF400000	┌ SF010000	Ω GO320000	· SD630000
-B	♂ SM280000	← SM300000	+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	ï LI170000	ø LO610000	½ NF010000	╗ SF250000	╦ SF410000	█ SF610000	δ GD010000	√ SA800000
-C	♀ SM290000	∟ SA420000	, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	î LI150000	£ SC020000	¼ NF040000	╝ SF260000	╠ SF420000	▬ SF570000	∞ SA450000	ⁿ LN011000
-D	♪ SM930000	↔ SM780000	- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000	ì LI130000	Ø LO620000	¡ SP030000	╜ SF270000	═ SF430000	▌ SF580000	ϕ GF010001	² ND021000
-E	♫ SM910000	▲ SM600000	. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	Ä LA180000	Pts SC060000	« SP170000	╛ SF280000	╬ SF440000	▐ SF590000	ε GE010000	■ SM470000
-F	☼ SM690000	▼ SV040000	/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000	⌂ SM790000	Å LA280000	ƒ SC070000	¤ SC010000	┐ SF030000	╧ SF450000	▬ SF600000	∩ SA380000	(RSP) SP300000

Figure 19.Denmark/Norway(CP865)

PC Data, Cyrillic, Russian

Code Page 00866

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		► SM590000	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	А KA020000	Р KR020000	а KA010000	░ SF140000	└ SF020000	╨ SF460000	р KR010000	Ё KE180000
-1	☺ SS000000	◄ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	Б KB020000	С KS020000	б KB010000	▒ SF150000	┴ SF070000	╥ SF470000	с KS010000	ё KE170000
-2	☻ SS010000	↕ SM760000	" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	В KV020000	Т KT020000	в KV010000	▓ SF160000	┬ SF060000	╤ SF480000	т KT010000	Є KE160000
-3	♥ SS020000	!! SP330000	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	Г KG020000	У KU020000	г KG010000	│ SF110000	├ SF080000	╙ SF490000	у KU010000	є KE150000
-4	♦ SS030000	¶ SM250000	$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	Д KD020000	Ф KF020000	д KD010000	┤ SF090000	─ SF100000	╘ SF500000	ф KF010000	Ї KI180000
-5	♣ SS040000	§ SM240000	% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	Е KE020000	Х KH020000	е KE010000	╡ SF190000	┼ SF050000	╒ SF510000	х KH010000	ї KI170000
-6	♠ SS050000	▬ SM700000	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	Ж KZ220000	Ц KC020000	ж KZ210000	╢ SF200000	╞ SF360000	╓ SF520000	ц KC010000	Ў KU240000
-7	• SM570000	↨ SM770000	' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	З KZ020000	Ч KC220000	з KZ010000	╖ SF210000	╟ SF370000	╫ SF530000	ч KC210000	ў KU230000
-8	◘ SM570001	↑ SM320000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000	И KI020000	Ш KS220000	и KI010000	╕ SF220000	╚ SF380000	╪ SF540000	ш KS210000	° SM190000
-9	○ SM750000	↓ SM330000	) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	Й KJ120000	Щ KS160000	й KJ110000	╣ SF230000	╔ SF390000	┘ SF040000	щ KS150000	• SA790000
-A	◙ SM750002	→ SM310000	* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	К KK020000	Ъ KU220000	к KK010000	║ SF240000	╩ SF400000	┌ SF010000	ъ KU210000	· SD630000
-B	♂ SM280000	← SM300000	+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	Л KL020000	Ы KY020000	л KL010000	╗ SF250000	╦ SF410000	█ SF610000	ы KY010000	√ SA800000
-C	♀ SM290000	∟ SA420000	, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	М KM020000	Ь KX120000	м KM010000	╝ SF260000	╠ SF420000	▬ SF570000	ь KX110000	№ SM000000
-D	♪ SM930000	↔ SM780000	- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000	Н KN020000	Э KE140000	н KN010000	╜ SF270000	═ SF430000	▌ SF580000	э KE130000	¤ SC010000
-E	♫ SM910000	▲ SM600000	. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	О KO020000	Ю KU160000	о KO010000	╛ SF280000	╬ SF440000	▐ SF590000	ю KU150000	■ SM470000
-F	☼ SM690000	▼ SV040000	/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000	⌂ SM790000	П KP020000	Я KA160000	п KP010000	┐ SF030000	╧ SF450000	▬ SF600000	я KA150000	(RSP) SP300000

Figure 20. Russian(CP866)

Turkish 2

Code Page 00867

00	☺	►		0	@	P	`	p	Ç	É	á	▒	└	º	Ó	-
01	☻	◄	!	1	A	Q	a	q	ü	æ	í	▒	┴	ª	ß	±
02	♥	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	Ê	Ô	
03	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ò	¾
04	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	È	õ	¶
05	♣	§	%	5	E	U	e	u	à	ò	Ñ	Á	┼		Õ	§
06	♠	▬	&	6	F	V	f	v	ã	û	Ğ	Ã	ã	Í	µ	÷
07	•	↨	'	7	G	W	g	w	ç	ù	ğ	À	Ã	Î		¸
08	◘	↑	(	8	H	X	h	x	ê	İ	¿	©	╣	Ï	×	°
09	○	↓	)	9	I	Y	i	y	ë	Ö	®	╗	╔	╝	Ú	¨
0A	◙	→	*	:	J	Z	j	z	è	Ü	¬	╚	╩	╘	Û	·
0B	♂	←	+	;	K	[	k	{	ï	ø	½	╖	╦	╒	Ù	¹
0C	♀	∟	,	<	L	\	l	|	î	£	¼	╕	╠	▄	ì	³
0D	♪	↔	-	=	M	]	m	}	ı	Ø	¡	¢	═	¦	¥	²
0E	♫	▲	.	>	N	^	n	~	Ä	Ş	«	¥	╬	Ì	´	■
0F	☼	▼	/	?	O	_	o	⌂	Å	ş	»	╗	¤	▀	´	

Figure 21.Turkish2(CP867)

OCR-A

Code Page 00876

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0			(SP) SP010000	0 ND100000	@ SM050000	P LP020000	⌐ SO020000	p LP010000								
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000								
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000		Æ LA520000						
-3			# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000								
-4			$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000								
-5			% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000			Ñ LN200000					
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000								
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000			Ø LO620000					
-8		— SO150000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000								
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000		Ö LO180000						
-A			* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000		Ü LU180000						
-B			+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000								
-C			, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SO130000		£ SC020000						
-D			- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000		¥ SC050000						
-E			. SP110000	> SA050000	N LN020000	^ SM090000	n LN010000	♪ SO000000	Ä LA180000							
-F			/ SP120000	? SP150000	O LO020000	⅄ SO010000	o LO010000	■ SO140000	Å LA280000							

Figure 22.OCR-A(CP876)

OCR-B

Code Page 00877

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0			(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000								
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	ü LU170000	æ LA510000					ß LS610000	
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000		Æ LA520000						
-3			# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000								
-4			$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	ä LA170000	ö LO170000						
-5			% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000			Ñ LN200000					§ SM240000
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	å LA270000		ø LO610000					
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000			Ø LO620000					˚ SD410000
-8		— SO150000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000								
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000		Ö LO180000	‾ SP090000	ij LI510000				¨ SD170000
-A			* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000		Ü LU180000		IJ LI520000				
-B			+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000		^ SD150000						
-C			, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SO130000		£ SC020000						
-D			- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000		¥ SC050000						
-E			. SP110000	> SA050000	N LN020000	^ SM090000	n LN010000	~ SD190000	Ä LA180000							
-F			/ SP120000	? SP150000	O LO020000	_ SD470000	o LO010000	▮ SO140000	Å LA280000				¤ SC010000		´ SD110000	

Figure 23.OCR-B(CP877)

Latin 2 (ISO 8859-2)

Code Page 00912

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0			(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000			(RSP) SP300000	° SM190000	Ŕ LR120000	Đ LD620000	ŕ LR110000	đ LD610000
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000			Ą LA440000	ą LA430000	Á LA120000	Ń LN120000	á LA110000	ń LN110000
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000			˘ SD230000	˛ SD430000	Â LA160000	Ň LN220000	â LA150000	ň LN210000
-3			# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000			Ł LL620000	ł LL610000	Ă LA240000	Ó LO120000	ă LA230000	ó LO110000
-4			$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000			¤ SC010000	´ SD110000	Ä LA180000	Ô LO160000	ä LA170000	ô LO150000
-5			% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000			Ľ LL220000	ľ LL210000	Ĺ LL120000	Ő LO260000	Í LI110000	ő LO250000
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000			Ś LS120000	ś LS110000	Ć LC120000	Ö LO180000	ć LC110000	ö LO170000
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000			§ SM240000	ˇ SD210000	Ç LC420000	× SA070000	ç LC410000	÷ SA060000
-8			(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000			¨ SD170000	¸ SD410000	Č LC220000	Ř LR220000	č LC210000	ř LR210000
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000			Š LS220000	š LS210000	É LE120000	Ů LU280000	é LE110000	ů LU270000
-A			* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000			Ş LS420000	ş LS410000	Ę LE440000	Ú LU120000	ę LE430000	ú LU110000
-B			+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000			Ť LT220000	ť LT210000	Ë LE180000	Ű LU260000	ë LE170000	ű LU250000
-C			, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000			Ź LZ120000	ź LZ110000	Ě LE220000	Ü LU180000	ě LE210000	ü LU170000
-D			- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000			¯ (SHY) SP320000	˝ SD250000	Í LI120000	Ý LY120000	í LI110000	ý LY110000
-E			. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000			Ž LZ220000	ž LZ210000	Î LI160000	Ţ LT420000	î LI150000	ţ LT410000
-F			/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000				Ż LZ300000	ż LZ290000	Ď LD220000	ß LS610000	ď LD210000	˙ SD290000

Figure 24.ISO8859/2(Latin2)

Latin 3 (ISO 8859-3)

Code Page 00913

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0			(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000			(RSP) SP300000	° SM190000	À LA140000		à LA130000	
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000			Ħ LH620000	ħ LH610000	Á LA120000	Ñ LN200000	á LA110000	ñ LN190000
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000			˘ SD230000	² ND021000	Â LA160000	Ò LO140000	â LA150000	ò LO130000
-3			# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000			£ SC020000	³ ND031000		Ó LO120000		ó LO110000
-4			$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000			¤ SC010000	´ SD110000	Ä LA180000	Ô LO160000	ä LA170000	ô LO150000
-5			% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000				µ SM170000	Ċ LC300000	Ġ LG300000	ċ LC290000	ġ LG290000
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000			Ĥ LH160000	ĥ LH150000	Ĉ LC160000	Ö LO180000	ĉ LC150000	ö LO170000
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000			§ SM240000	· SD630000	Ç LC420000	× SA070000	ç LC410000	÷ SA060000
-8			(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000			¨ SD170000	¸ SD410000	È LE140000	Ĝ LG160000	è LE130000	ĝ LG150000
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000			İ LI300000	ı LI610000	É LE120000	Ù LU140000	é LE110000	ù LU130000
-A			* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000			Ş LS420000	ş LS410000	Ê LE160000	Ú LU120000	ê LE150000	ú LU110000
-B			+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000			Ğ LG240000	ğ LG230000	Ë LE180000	Û LU160000	ë LE170000	û LU150000
-C			, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000			Ĵ LJ160000	ĵ LJ150000	Ì LI140000	Ü LU180000	ì LI130000	ü LU170000
-D			- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000			¯ (SHY) SP320000	½ NF010000	Í LI120000	Ŭ LU240000	í LI110000	ŭ LU230000
-E			. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000					Î LI160000	Ŝ LS160000	î LI150000	ŝ LS150000
-F			/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000				Ż LZ300000	ż LZ290000	Ï LI180000	ß LS610000	ï LI170000	˙ SD290000

Figure 25.ISO8859/3(Latin3)

Latin 4 (ISO 8859-4)

Code Page 00914

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0			(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000			(RSP) SP300000	° SM190000	Ā LA320000	Đ LD620000	ā LA310000	đ LD610000
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000			Ą LA440000	ą LA430000	Á LA120000	Ŋ LN420000	á LA110000	ŋ LN410000
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000			ĸ LK810000	˛ SD430000	Â LA160000	Ō LO320000	â LA150000	ō LO310000
-3			# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000			Ŗ LR420000	ŗ LR410000	Ã LA200000	Ķ LK420000	ã LA190000	ķ LK410000
-4			$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000			¤ SC010000	´ SD110000	Ä LA180000	Ô LO160000	ä LA170000	ô LO150000
-5			% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000			Ĩ LI200000	ĩ LI190000	Å LA280000	Õ LO200000	å LA270000	õ LO190000
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000			Ļ LL420000	ļ LL410000	Æ LA520000	Ö LO180000	æ LA510000	ö LO170000
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000			§ SM240000	ˇ SD210000	Ī LI440000	× SA070000	ī LI430000	÷ SA060000
-8			(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000			¨ SD170000	¸ SD410000	Č LC220000	Ø LO620000	č LC210000	ø LO610000
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000			Š LS220000	š LS210000	É LE120000	Ų LU440000	é LE110000	ų LU430000
-A			* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000			Ē LE320000	ē LE310000	Ę LE440000	Ú LU120000	ę LE430000	ú LU110000
-B			+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000			Ģ LG420000	ģ LG410000	Ë LE180000	Û LU160000	ë LE170000	û LU150000
-C			, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000			Ŧ LT620000	ŧ LT610000	Ė LE300000	Ü LU180000	ė LE290000	ü LU170000
-D			- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000			(SHY) SP320000	Ņ LN620000	Í LI120000	Ũ LU200000	í LI110000	ũ LU190000
-E			. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000			Ž LZ220000	ž LZ210000	Î LI160000	Ū LU320000	î LI150000	ū LU310000
-F			/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000				¯ SD310000	ŋ LN610000	Ī LI320000	ß LS610000	ī LI310000	˙ SD290000

Figure 26.ISO8859/4(Latin4)

Cyrillic (ISO 8859-5)

Code Page 00915

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0			(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000			(RSP) SP300000	А KA020000	Р KR020000	а KA010000	р KR010000	№ SM000000
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000			Ё KE180000	Б KB020000	С KS020000	б KB010000	с KS010000	ё KE170000
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000			Ђ KD620000	В KV020000	Т KT020000	в KV010000	т KT010000	ђ KD610000
-3			# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000			Ѓ KG120000	Г KG020000	У KU020000	г KG010000	у KU010000	ѓ KG110000
-4			$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000			Є KE160000	Д KD020000	Ф KF020000	д KD010000	ф KF010000	є KE150000
-5			% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000			Ѕ KZ160000	Е KE020000	Х KH020000	е KE010000	х KH010000	ѕ KZ150000
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000			І KI120000	Ж KZ220000	Ц KC020000	ж KZ210000	ц KC010000	і KI110000
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000			Ї KI180000	З KZ020000	Ч KC220000	з KZ010000	ч KC210000	ї KI170000
-8			(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000			Ј KJ020000	И KI020000	Ш KS220000	и KI010000	ш KS210000	ј KJ010000
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000			Љ KL420000	Й KJ120000	Щ KS160000	й KJ110000	щ KS150000	љ KL410000
-A			* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000			Њ KN120000	К KK020000	Ъ KU220000	к KK010000	ъ KU210000	њ KN110000
-B			+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000			Ћ KC120000	Л KL020000	Ы KY020000	л KL010000	ы KY010000	ћ KC110000
-C			, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000			Ќ KK120000	М KM020000	Ь KX120000	м KM010000	ь KX110000	ќ KK110000
-D			- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000			(SHY) SP320000	Н KN020000	Э KE140000	н KN010000	э KE130000	§ SM240000
-E			. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000			Ў KU240000	О KO020000	Ю KU160000	о KO010000	ю KU150000	ў KU230000
-F			/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000				Џ KG220000	П KP020000	Я KA160000	п KP010000	я KA150000	џ KG210000

Figure 27.ISO8859/5(Latin/Cyrillic)

Latin 8 (ISO 8859-8)

Code Page 00916

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0			(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000			(RSP) SP300000	° SM190000			א HX330000	נ HN010000
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000				± SA020000			ב HB010000	ס HS010000
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000			¢ SC040000	² ND021000			ג HG010000	ע HX350000
-3			# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000			£ SC020000	³ ND031000			ד HD010000	ף HP610000
-4			$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000			¤ SC010000	´ SD110000			ה HH010000	פ HP010000
-5			% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000			¥ SC050000	µ SM170000			ו HW010000	ץ HS610000
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000			¦ SM650000	¶ SM250000			ז HZ010000	צ HS450000
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000			§ SM240000	• SM570000			ח HH450000	ק HQ010000
-8			(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000			¨ SD170000	¸ SD410000			ט HT450000	ר HR010000
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000			© SM520000	¹ ND011000			י HY010000	ש HS210000
-A			* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000			× SA070000	÷ SA060000			ך HK610000	ת HT010000
-B			+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000			« SP170000	» SP180000			כ HK010000	
-C			, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000			¬ SM660000	¼ NF040000			ל HL010000	
-D			- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000			¯ (SHY) SP320000	½ NF010000			ם HM610000	
-E			. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000			® SM530000	¾ NF050000			מ HM010000	
-F			/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000				‾ SM150000			‗ SM100000	ן HN610000	

Figure 28. ISO8859/8

Latin 5 (ISO 8859-9)

Code Page 00920

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0			(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000			(RSP) SP300000	° SM190000	À LA140000	Ğ LG240000	à LA130000	ğ LG230000
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000			¡ SP030000	± SA020000	Á LA120000	Ñ LN200000	á LA110000	ñ LN190000
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000			¢ SC040000	² ND021000	Â LA160000	Ò LO140000	â LA150000	ò LO130000
-3			# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000			£ SC020000	³ ND031000	Ã LA200000	Ó LO120000	ã LA190000	ó LO110000
-4			$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000			¤ SC010000	´ SD110000	Ä LA180000	Ô LO160000	ä LA170000	ô LO150000
-5			% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000			¥ SC050000	µ SM170000	Å LA280000	Õ LO200000	å LA270000	õ LO190000
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000			¦ SM650000	¶ SM250000	Æ LA520000	Ö LO180000	æ LA510000	ö LO170000
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000			§ SM240000	· SD630000	Ç LC420000	× SA070000	ç LC410000	÷ SA060000
-8			(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000			¨ SD170000	¸ SD410000	È LE140000	Ø LO620000	è LE130000	ø LO610000
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000			© SM520000	¹ ND011000	É LE120000	Ù LU140000	é LE110000	ù LU130000
-A			* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000			ª SM210000	º SM200000	Ê LE160000	Ú LU120000	ê LE150000	ú LU110000
-B			+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000			« SP170000	» SP180000	Ë LE180000	Û LU160000	ë LE170000	û LU150000
-C			, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000			¬ SM660000	¼ NF040000	Ì LI140000	Ü LU180000	ì LI130000	ü LU170000
-D			- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000			¯ (SHY) SP320000	½ NF010000	Í LI120000	İ LI300000	í LI110000	ı LI610000
-E			. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000			® SM530000	¾ NF050000	Î LI160000	Ş LS420000	î LI150000	ş LS410000
-F			/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000				¯ SM150000	¿ SP160000	Ï LI180000	ß LS610000	ï LI170000	ÿ LY170000

Figure 29. ISO8859/9(Latin5)

Baltic Multilingual

Code Page 00921

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0			(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000			(RSP) SP300000	° SM190000	Ą LA440000	Š LS220000	ą LA430000	š LS210000
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000			” SP220000	± SA020000	Į LI440000	Ń LN120000	į LI430000	ń LN110000
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000			¢ SC040000	² ND021000	Ā LA320000	Ņ LN420000	ā LA310000	ņ LN410000
-3			# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000			£ SC020000	³ ND031000	Ć LC120000	Ō LO120000	ć LC110000	ō LO110000
-4			$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000			¤ SC010000	“ SP210000	Ä LA180000	Ŏ LO320000	ä LA170000	ŏ LO310000
-5			% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000			„ SP230000	µ SM170000	Å LA280000	Õ LO200000	å LA270000	õ LO190000
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000			¦ SM650000	¶ SM250000	Ę LE440000	Ö LO180000	ę LE430000	ö LO170000
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000			§ SM240000	· SD630000	Ē LE320000	× SA070000	ē LE310000	÷ SA060000
-8			(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000			Ø LO620000	ø LO610000	Č LC220000	Ų LU440000	č LC210000	ų LU430000
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000			© SM520000	¹ ND011000	É LE120000	Ł LL620000	é LE110000	ł LL610000
-A			* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000			Ŗ LR420000	ŗ LR410000	Ź LZ120000	Ś LS120000	ź LZ110000	ś LS110000
-B			+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000			« SP170000	» SP180000	Ė LE300000	Ū LU320000	ė LE290000	ū LU310000
-C			, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000			¬ SM660000	¼ NF040000	Ģ LG420000	Ü LU180000	ģ LG410000	ü LU170000
-D			- SP100000	= SA040000	M LM020000	] SM090000	m LM010000	} SM140000			¯ (SHY) SP320000	½ NF010000	Ķ LK420000	Ż LZ300000	ķ LK410000	ż LZ290000
-E			. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000			® SM530000	¾ NF050000	Ī LI320000	Ž LZ220000	ī LI310000	ž LZ210000
-F			/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000				Æ LA520000	æ LA510000	Ļ LL420000	ß LS610000	ļ LL410000	’ SP200000

Figure 30. BalticWindows(CP921)

Estonian

Code Page 00922

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0			(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000			(RSP) SP300000	° SM180000	À LA140000	Š LS220000	à LA130000	š LS210000
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000			¡ SP030000	± SA020000	Á LA120000	Ñ LN200000	á LA110000	ñ LN190000
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000			¢ SC040000	² ND021000	Â LA160000	Ò LO140000	â LA150000	ò LO130000
-3			# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000			£ SC020000	³ ND031000	Ã LA200000	Ó LO120000	ã LA190000	ó LO110000
-4			$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000			¤ SC010000	´ SD110000	Ä LA180000	Ô LO160000	ä LA170000	ô LO150000
-5			% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000			¥ SC050000	µ SM170000	Å LA290000	Õ LO200000	å LA270000	õ LO190000
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000			¦ SM650000	¶ SM250000	Æ LA520000	Ö LO180000	æ LA510000	ö LO170000
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000			§ SM240000	· SD630000	Ç LC420000	× SA070000	ç LC410000	÷ SA060000
-8			(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000			¨ SD170000	¸ SD410000	È LE140000	Ø LO620000	è LE130000	ø LO610000
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000			© SM520000	¹ ND011000	É LE120000	Ù LU140000	é LE110000	ù LU130000
-A			* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000			ª SM210000	º SM200000	Ê LE160000	Ú LU120000	ê LE150000	ú LU110000
-B			+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000			« SP170000	» SP180000	Ë LE180000	Û LU160000	ë LE170000	û LU150000
-C			, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000			¬ SM660000	¼ NF040000	Ì LI140000	Ü LU180000	ì LI130000	ü LU170000
-D			- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000			¯ (SHY) SP320000	½ NF010000	Í LI120000	Ý LY120000	í LI110000	ý LY110000
-E			. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000			® SM530000	¾ NF050000	Î LI160000	Ž LZ220000	î LI150000	ž LZ210000
-F			/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000				¯ SM150000	¿ SP160000	Ï LI180000	ß LS610000	ï LI170000	ÿ LY170000

Figure 31.Estonian (CP922)

Latin 9 (ISO 8859-15) + euro

Code Page 00923

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0			(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000			(RSP) SP300000	° SM190000	À LA140000	Ð LD640000	à LA130000	ð LD630000
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000			¡ SP030000	± SA020000	Á LA120000	Ñ LN200000	á LA110000	ñ LN190000
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000			¢ SC040000	² ND021000	Â LA160000	Ò LO140000	â LA150000	ò LO130000
-3			# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000			£ SC020000	³ ND031000	Ã LA200000	Ó LO120000	ã LA190000	ó LO110000
-4			$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000			€ SC200000	Ž LZ220000	Ä LA180000	Ô LO160000	ä LA170000	ô LO150000
-5			% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000			¥ SC050000	µ SM170000	Å LA280000	Õ LO200000	å LA270000	õ LO190000
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000			Š LS220000	¶ SM250000	Æ LA520000	Ö LO180000	æ LA510000	ö LO170000
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000			§ SM240000	· SD630000	Ç LC420000	× SA070000	ç LC410000	÷ SA060000
-8			(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000			š LS210000	ž LZ210000	È LE140000	Ø LO620000	è LE130000	ø LO610000
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000			© SM520000	¹ ND011000	É LE120000	Ù LU140000	é LE110000	ù LU130000
-A			* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000			ª SM210000	º SM200000	Ê LE160000	Ú LU120000	ê LE150000	ú LU110000
-B			+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000			« SP170000	» SP180000	Ë LE180000	Û LU160000	ë LE170000	û LU150000
-C			, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000			¬ SM660000	Œ LO520000	Ì LI140000	Ü LU180000	ì LI130000	ü LU170000
-D			- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000			(SH̄Y) SP320000	œ LO510000	Í LI120000	Ý LY120000	í LI110000	ý LY110000
-E			. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000			® SM530000	Ÿ LY180000	Î LI160000	Þ LT640000	î LI150000	þ LT630000
-F			/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000				¯ SD310000	¿ SP160000	Ï LI180000	ß LS610000	ï LI170000	ÿ LY170000

Figure 32.ISO8859/15(Latin9) .151

Urdu

Code Page 01006

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0			(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000			(RSP) SP300000	ا AA010000	چ AC210000	ش AS230003	ف AF010003	و AW010000
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000			۰ ND100001	ب AA010002	چ AC210003	ص AS450006	ق AQ010000	ہ AH020000
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000			۱ ND010001	پ AA010006	ح AH450000	صہ AS450003	قہ AQ010003	ہہ AH020003
-3			# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000			۲ ND020001	ب AB010000	حہ AH450003	ض AD450006	ک AK010006	ہہ AH020004
-4			$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000			۳ ND030001	بہ AB010003	خ AH470000	ضہ AD450003	کہ AK010003	ھ AH030000
-5			% SM020007	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000			۴ ND040004	پ AP010000	خہ AH470003	ط AT450000	گ AG010000	ء AX300000
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000			۵ ND050004	پہ AP010003	د AD010000	ظ AZ450000	گہ AG010003	ئ AY320000
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000			۶ ND060001	ة AT020000	ذ AD030000	ع AC470000	ل AL010000	ئ AY320002
-8			(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000			۷ ND070004	ت AT010000	ذ AD470000	ع AC470002	ل AL010006	ئے AY320003
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000			۸ ND080001	تہ AT010003	ر AR010000	عہ AC470003	لہ AL010004	ی AY020000
-A			* SM040007	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000			۹ ND090001	ٹ AT030000	ز AR030000	عہ AC470004	م AM010000	ی AY020002
-B			+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000			، SP080007	ٹہ AT030003	زہ AZ010000	غ AG310000	مہ AM010003	یہ AY020003
-C			, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000			؛ SP140007	ٹ AT470000	ژ AZ210000	غہ AG310002	ں AN020000	ے AY340000
-D			- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000			(SHY) SP320000	ٹہ AT470003	س AS010006	غ AG310003	ن AN010000	ے AY040000
-E			. SP110000	>> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000			؟ SP150007	ج AG230000	سہ AS010003	غہ AG310004	نہ AN010003	ۓ AX100000
-F			/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000				آ AA210000	جہ AG230003	ش AS230006	ف AF010000	ؤ AW310000	ۓ AX100004

Figure 33.Urdu (CP01006)

Arabic Extended

Code Page 01046

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0			(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	﴿ AA310402	ـُ AU050004	(RSP) SP300000	٠ ND100001	ء AC470003	ذ AD470000	ـ SM860000	ـَ AI050000
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	× SA070000	ـَ AI050004	آ AA210006	١ ND010001	ٮ AX300000	ر AR010000	ف AF010000	ٮ AX100000
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	÷ SA060000	ـّ AX100004	أ AA310006	٢ ND020001	آ AA210000	ز AZ010000	ق AQ010000	٠ AE050000
-3			# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	س AS010000	ـْ AE050004	إ AA310406	٣ ND030001	أ AA310000	س AS010006	ك AK010000	ق AQ010003
-4			$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	ش AS230000	ـً AA050004	¤ SC010000	٤ ND040001	ؤ AW310000	ش AS230006	ل AL010000	ك AK010003
-5			% SM020007	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	ص AS450000	ىء AY310002	ا AA010006	٥ ND050001	إ AA310400	ص AS450006	م AM010000	ل AL010003
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	ض AD450000	ى AA020002	ث AY310000	٦ ND060001	ىء AY310006	ض AD450006	ن AN010000	ـِ SM870000
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	ـٔ AA070004	ـٖ AY010003	ب AB010003	٧ ND070001	ا AA010000	ط AT450000	ه AH010003	لآ AL220000
-8			(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000		ي AY010002	ت AT010003	٨ ND080001	ب AB010000	ظ AZ450000	و AW010000	لأ AL320000
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	■ SM470000	غ AG310002	ث AT470003	٩ ND090001	ة AT020000	ع AC470000	ى AA020000	لإ AL320400
-A			* SM040007	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	┃ SF110000	غ AG310003	ج AG230003	ش AS230003	ت AT010000	غ AG310000	ي AY010000	لا AL020000
-B			+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	━ SF100000	غ AG310004	ح AH450003	؛ SP140007	ث AT470000	ع AC470004	ـٕ AA070000	ـم AM01000
-C			, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	┐ SF030000	لآ AL220003	، SP080007	ص AS450003	ج AG230000	آ AA210002	ـء AU070000	ن AN010003
-D			- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000	┌ SF010000	لأ AL320003	(SHY) SP320000	ض AD450003	ح AH450000	أ AA310002	ـٓ AI070000	ـة AH010004
-E			. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	└ SF020000	لإ AL320402	خ AH470003	ع AC470002	ح AH470000	ا AA010002	ـَ AA050000	ه AH010000
-F			/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000		┘ SF040000	لا AL020003	س AS010003	؟ SP150007	د AD010000	ف AF010003	ـُ AU050000	

Figure 34.Arabic Extended (CP1046)

Latin 6 (ISO 8859-6)

Code Page 01089

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0			(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000			(RSP) SP300000			ذ AD470009	ـ SM860000	ً AI050009
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000					ء AX300009	ر AR010009	ف AF010009	ّ AX100009
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000					آ AA210009	ز AZ010009	ق AQ010009	ٌ AE050009
-3			# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000					أ AA310009	س AS010009	ك AK010009	
-4			$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000			¤ SC010000		ؤ AW310009	ش AS230009	ل AL010009	
-5			٪ SM020007	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000					إ AA310409	ص AS450009	م AM010009	
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000					ئ AY310009	ض AD450009	ن AN010009	
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000					ا AA010009	ط AT450009	ه AH010009	
-8			(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000					ب AB010009	ظ AZ450009	و AW010009	
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000					ة AT020009	ع AC470009	ى AA020009	
-A			* SM040007	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000					ت AT010009	غ AG310009	ي AY010009	
-B			+ SA010000	; SP140000	K LK020000	[SM080000	k LK010000	{ SM110000				؛ SP140007	ث AT470009		ٍ AA070009	
-C			, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000			، SP080007		ج AG230009		ٌ AU070009	
-D			- SP100000	= SA040000	M LM020000	] SM090000	m LM010000	} SM140000			(SHY) SP320000		ح AH450009		ٍ AI070009	
-E			. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000					خ AH470009		َ AA050009	
-F			/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000					؟ SP150007	د AD010009		ُ AU050009	

Figure 35.ISO8859/6(Latin/Arabic)

Farsi (Personal Computer)

Code Page 01098

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		► SM580000	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000		ؤ AW310000	ح AH450003	SF140000	SF020000	ع AC470002	ک AK010006	(SHY) SP320000
-1	☺ SS000000	◄ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000		ئ AY320003	خ AH470000	SF150000	SF070000	ء AC470003	ک AK010003	ی AY020002
-2	☻ SS010000	↕ SM760000	" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	، SP080007	ب AB010000	خ AH470003	SF160000	SF080000	ع AC470004	گ AG010000	ی AY020003
-3	♥ SS020000	!! SP330000	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	؛ SP140007	ب AB010003	د AD010000	SF110000	SF060000	غ AG310000	گ AG010003	_ SM860000
-4	♦ SS030000	¶ SM250000	$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	؟ SP150007	پ AP010000	ذ AD470000	SF090000	SF100000	غ AG310002	ل AL010000	ه ND100003
-5	♣ SS040000	§ SM240000	٪ SM020007	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	ء AA070009	پ AP010003	ر AR010000	ض AD450006	SF050000	غ AG310003	ل AL010003	ا ND010001
-6	♠ SS050000	▬ SM700000	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	آ AA210000	ت AT010000	ز AZ010000	ض AD450003	ظ AZ450002	غ AG310004	م AM010000	۲ ND020001
-7	• SM570000	↨ SM770000	' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	أ AA210002	ت AT010003	ژ AZ210000	ط AT450001	ع AC470000	ف AF010000	م AM010003	۳ ND030001
-8	◘ SM570001	↑ SM320000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000	آ AA210006	ث AT470000	س AS010006	ط AT450002	SF380000	ف AF010003	ن AN010000	۴ ND040003
-9	○ SM750000	↓ SM330000	) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	ا AA010000	ث AT470003	س AS010003	SF230000	SF390000	SF040000	ن AN010003	۵ ND050004
-A	◙ SM750002	→ SM310000	* SM040007	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	ب AA010002	ج AG230000	ش AS230006	SF240000	SF400000	SF010000	و AW010000	۶ ND060003
-B	♂ SM280000	← SM300000	+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	ة AA010006	چ AG230003	ش AS230003	SF250000	SF410000	SF610000	ه AH010000	۷ ND070001
-C	♀ SM290000	∟ SA420000	, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	ه AX300000	ج AC210000	ص AS450006	SF260000	SF420000	SF570000	ه AH010003	۸ ND080001
-D	♪ SM830000	↔ SM760000	- SP100000	= SA040000	M LM020000	] SM090000	m LM010000	} SM140000	أ AA310000	چ AC210003	ص AS450003	SC180000	SF430000	ق AQ010000	ۀ AH010004	۹ ND090001
-E	♫ SM910000	▲ SM800000	. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	ئ AA310002	× SA070000	« SP170000	ظ AZ450001	SF440000	ق AQ010003	ة AH210000	■ SM470000
-F	☼ SM690000	▼ SV040000	/ SP120000	? SP150000	O LO020000	_ SP050000	o LO010000	△ SM780000	ئ AA310006	ح AH450000	» SP180000	SF030000		▬ SF600000	ی AY020000	(RSP) SP300000

Figure 36.Farsi(CP1098)

Estonian (Personal Computer)

Code Page 01116

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		► SM580000	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	Ç LC420000	É LE120000	á LA110000	▒ SF140000	└ SF020000	š LS210000	Ó LO120000	(SHY) SP320000
-1	☺ SS030000	◄ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	ü LU170000	æ LA510000	í LI110000	▒ SF150000	┴ SF070000	Š LS220000	ß LS610000	± SA020000
-2	☻ SS010000	↕ SM760000	" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	é LE110000	Æ LA520000	ó LO110000	▓ SF160000	┬ SF080000	Ê LE160000	Ô LO160000	═ SM100000
-3	♥ SS020000	!! SP330000	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	â LA150000	ô LO150000	ú LU110000	│ SF110000	├ SF060000	Ë LE180000	Ò LO140000	¾ NF050000
-4	♦ SS030000	¶ SM250000	$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	ä LA170000	ö LO170000	ñ LN190000	┤ SF090000	─ SF100000	È LE140000	õ LO180000	¶ SM250000
-5	♣ SS040000	§ SM240000	% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	à LA130000	ò LO130000	Ñ LN200000	Á LA120000	┼ SF050000	ı LI610000	Õ LO200000	§ SM240000
-6	♠ SS050000	▬ SM700000	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	å LA270000	û LU150000	ª SM210000	Â LA160000	ã LA190000	Í LI120000	µ SM170000	÷ SA060000
-7	• SM570000	↨ SM770000	' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	ç LC410000	ù LU130000	º SM200000	À LA140000	Ã LA200000	Î LI160000	ž LZ210000	¸ SD410000
-8	◘ SM570001	↑ SM320000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000	ê LE150000	ÿ LY170000	¿ SP160000	© SM520000	╚ SF380000	Ï LI180000	Ž LZ220000	° SM180000
-9	○ SM750000	↓ SM330000	) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	ë LE170000	Ö LO180000	® SM530000	╡ SF230000	╗ SF390000	┘ SF040000	Ú LU120000	¨ SD170000
-A	◙ SM750002	→ SM310000	* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	è LE130000	Ü LU180000	¬ SM660000	╢ SF240000	╩ SF400000	╒ SF010000	Û LU160000	· SD630000
-B	♂ SM280000	← SM300000	+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	ï LI170000	ø LO610000	½ NF010000	╖ SF250000	╦ SF410000	■ SF610000	Ù LU140000	¹ ND011000
-C	♀ SM290000	∟ SA420000	, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	î LI150000	£ SC020000	¼ NF040000	╕ SF260000	╠ SF420000	▬ SF570000	ý LY110000	³ ND031000
-D	♪ SM930000	↔ SM790000	- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000	ì LI130000	Ø LO620000	¡ SP030000	¢ SC040000	═ SF430000	¦ SM850000	Ý LY120000	² ND021000
-E	♫ SM910000	▲ SM800000	. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	Ä LA180000	× SA070000	« SP170000	¥ SC050000	╬ SF440000	Ì LI140000	¯ SM150000	■ SM470000
-F	☼ SM690000	▼ SV040000	/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000	⌂ SM790000	Å LA280000	ƒ SC070000	» SP180000	┐ SF030000	¤ SC010000	▬ SF600000	´ SD110000	(RSP) SP300000

Figure 37.Estonian (CP1116)

Latvian (Personal Computer)

Code Page 01117

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		► SM580000	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	Ć LC120000	É LE120000	Ā LA320000	SF140000	SF020000	SF460000	Ó LO120000	(SHY) SP320000
-1	☺ SS000000	◄ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	ü LU170000	Ż LZ300000	Ī LI320000	SF150000	SF070000	SF470000	ß LS610000	± SA020000
-2	☻ SS010000	↕ SM760000	" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	é LE110000	ż LZ290000	ó LO110000	SF160000	SF060000	SF480000	Ō LO320000	æ LA510000
-3	♥ SS020000	!! SP330000	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	ā LA310000	ō LO310000	ų LU430000	SF110000	SF080000	SF490000	Ń LN120000	Æ LA520000
-4	♦ SS030000	¶ SM250000	$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	ä LA170000	ö LO170000	Ą LA440000	SF090000	SF100000	SF500000	õ LO190000	¶ SM250000
-5	♣ SS040000	§ SM240000	% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	ģ LG410000	Ģ LG420000	ą LA430000	SF190000	SF050000	SF510000	Õ LO200000	¤ SC010000
-6	♠ SS050000	▬ SM700000	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	å LA270000	ū LU310000	Ž LZ220000	SF200000	SF360000	SF520000	Š LS220000	÷ SA060000
-7	• SM570000	↨ SM770000	' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	ć LC110000	Ś LS120000	ž LZ210000	SF210000	SF370000	SF530000	š LS210000	ø LO610000
-8	◘ SM570001	↑ SM320000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000	ł LL610000	ś LS110000	Ę LE440000	SF220000	SF380000	SF540000	Ķ LK420000	° SM190000
-9	○ SM750000	↓ SM330000	) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	ē LE310000	Ö LO180000	ę LE430000	SF230000	SF390000	SF040000	ķ LK410000	Ø LO620000
-A	◙ SM750002	→ SM310000	* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	ė LE290000	Ü LU180000	Ė LE300000	SF240000	SF400000	SF010000	Ū LU320000	· SD630000
-B	♂ SM280000	← SM300000	+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	į LI430000	ń LN110000	ź LZ110000	SF250000	SF410000	SF610000	Ų LU440000	ţ LR410000
-C	♀ SM290000	∟ SA420000	, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	ī LI310000	Ļ LL420000	Č LC220000	SF260000	SF420000	SF570000	ļ LL410000	Ŗ LR420000
-D	♪ SM930000	↔ SM780000	- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000	Ź LZ120000	Ł LL820000	Ī LI440000	SF270000	SF430000	SF580000	Ē LE320000	„ SP230000
-E	♫ SM910000	▲ SM600000	. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	Ä LA180000	× SA070000	« SP170000	SF280000	SF440000	SF590000	Ņ LN420000	“ SP210000
-F	☼ SM690000	▼ SV040000	/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000		Å LA280000	č LC210000	» SP180000	SF030000	SF450000	SF600000	ņ LN410000	(RSP) SP300000

Figure 38.Latvian (Personal Computer) (CP1117)

Lithuanian (Personal Computer)

Code Page 01118

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		► SM590000	(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	Ç LC420000	É LE120000	á LA110000	▒ SF140000	└ SF020000	ą LA430000	α GA010000	≡ SA480000
-1	☺ SS000000	◄ SM630000	! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	ü LU170000	æ LA510000	í LI110000	▓ SF150000	┴ SF070000	č LC210000	β GB010000	± SA020000
-2	☻ SS010000	↕ SM780000	" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	é LE110000	Æ LA520000	ó LO110000	▒ SF160000	┬ SF060000	ę LE430000	Γ GG020000	≥ SA530000
-3	♥ SS020000	!! SP330000	# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	â LA150000	ô LO150000	ú LU110000	│ SF110000	├ SF080000	ė LE290000	π GP010000	≤ SA520000
-4	♦ SS030000	¶ SM250000	$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	ä LA170000	ö LO170000	ñ LN190000	┤ SF090000	─ SF100000	į LI430000	Σ GS020000	„ SP230000
-5	♣ SS040000	§ SM240000	% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	à LA130000	ò LO130000	Ñ LN200000	Ą LA440000	┼ SF050000	š LS210000	σ GS010000	" SP210000
-6	♠ SS050000	━ SM700000	& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	å LA270000	û LU150000	ª SM210000	Č LC220000	Ų LU440000	ų LU430000	µ SM170000	÷ SA060000
-7	• SM570000	↨ SM770000	' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	ç LC410000	ù LU130000	º SM200000	Ę LE440000	Ū LU320000	ū LU310000	τ GT010000	≈ SA700000
-8	◘ SM570001	↑ SM320000	(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000	ê LE150000	ÿ LY170000	¿ SP160000	Ė LE300000	╚ SF380000	ž LZ210000	Φ GF020000	° SM190000
-9	○ SM750000	↓ SM330000	) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	ë LE170000	Ö LO180000	⌐ SM680000	╡ SF230000	╗ SF390000	┘ SF040000	Θ GT020000	• SA790000
-A	◙ SM750002	→ SM310000	* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	è LE130000	Ü LU180000	¬ SM660000	╢ SF240000	╩ SF400000	┌ SF010000	Ω GO320000	· SD290000
-B	♂ SM280000	← SM300000	+ SAD10000	; SP140000	K LK020000	[SM080000	k LK010000	{ SM110000	ï LI170000	¢ SC040000	½ NF010000	╖ SF250000	╦ SF410000	■ SF610000	δ GD010000	√ SA800000
-C	♀ SM290000	∟ SA420000	, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	î LI150000	£ SC020000	¼ NF040000	╜ SF260000	╠ SF420000	▬ SF570000	∞ SA450000	ⁿ LN011000
-D	♪ SM930000	↔ SM790000	- SP100000	= SA040000	M LM020000	] SM090000	m LM010000	} SM140000	ì LI130000	¥ SC050000	¡ SP030000	Ł LI440000	═ SF430000	▌ SF580000	φ GF010000	² ND021000
-E	♫ SM910000	▲ SM600000	. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	Ä LA180000	₧ SC060000	« SP170000	Š LS220000	╬ SF440000	▐ SF590000	ε GE010000	■ SM470000
-F	☼ SM690000	▼ SV040000	/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000	⌂ SM790000	Å LA280000	ƒ SC070000	» SP180000	╕ SF030000	Ž LZ220000	▬ SF600000	∩ SA140000	(RSP) SP300000

Figure 39.Lthuanian (Personal Computer) (CP1118)

Central Europe Latin 2

Code Page 01250

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0			(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	€ SC200000		(RSP) SP300000	° SM190000	Ŕ LR120000	Đ LD600000	ŕ LR110000	đ LD610000
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000		‘ SP190000	ˇ SD210000	± SA020000	Á LA120000	Ń LN120000	á LA110000	ń LN110000
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	‚ SP260000	’ SP200000	˘ SD230000	¸ SD430000	Â LA160000	Ň LN220000	â LA150000	ň LN210000
-3			# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000		“ SP210000	Ł LL620000	ł LL610000	Ă LA240000	Ő LO120000	ă LA230000	ő LO110000
-4			$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	„ SP230000	” SP220000	¤ SC010000	´ SD110000	Ä LA180000	Ô LO160000	ä LA170000	ô LO150000
-5			% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	… SV520000	• SM570000	Ą LA440000	µ SM170000	Ĺ LL120000	Ő LO260000	Í LL110000	ő LO250000
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	† SM340000	– SS680000	¦ SM650000	¶ SM250000	Ć LC120000	Ö LO180000	ć LC110000	ö LO170000
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	‡ SM350000	— SM900000	§ SM240000	· SD630000	Ç LC420000	× SA070000	ç LC410000	÷ SA060000
-8			(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000			¨ SD170000	¸ SD410000	Č LC220000	Ř LR220000	č LC210000	ř LR210000
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	‰ SM560000	™ SM540000	© SM520000	ą LA430000	É LE120000	Ů LU280000	é LE110000	ů LU270000
-A			* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	Š LS220000	š LS210000	Ş LS420000	ş LS410000	Ę LE440000	Ú LU120000	ę LE430000	ú LU110000
-B			+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	‹ SP270000	› SP280000	« SP170000	» SP180000	Ë LE180000	Ű LU260000	ë LE170000	ű LU250000
-C			, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	Ś LS120000	ś LS110000	¬ SM660000	Ľ LL220000	Ě LE220000	Ü LU180000	ě LE210000	ü LU170000
-D			- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000	Ť LT220000	ť LT210000	(SHY) SP320000	˝ SD250000	Í LI120000	Ý LY120000	í LI110000	ý LY110000
-E			. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	Ž LZ220000	ž LZ210000	® SM530000	Ĭ LL210000	Î LI160000	Ţ LT420000	î LI150000	ţ LT410000
-F			/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000		Ź LZ120000	ź LZ110000	Ż LZ300000	ż LZ290000	Ď LD220000	ß LS610000	ď LD210000	˙ SD290000

Figure 40.CentralEurope(CP1250)

Cyrillic Windows + euro

Code Page 01251

HEX DIGITS 1ST → 2ND ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0			(SP) SP010000	0 ND100000	@ SM050000	P LP020000	` SD130000	p LP010000	Ђ KD620000	ђ KD610000	(RSP) SP300000	° SM190000	А KA020000	Р KR020000	а KA010000	р KR010000
-1			! SP020000	1 ND010000	A LA020000	Q LQ020000	a LA010000	q LQ010000	Ѓ KG120000	‘ SP190000	Ў KU240000	± SA020000	Б KB020000	С KS020000	б KB010000	с KS010000
-2			" SP040000	2 ND020000	B LB020000	R LR020000	b LB010000	r LR010000	, SP260000	’ SP200000	ў KU230000	І KI120000	В KV020000	Т KT020000	в KV010000	т KT010000
-3			# SM010000	3 ND030000	C LC020000	S LS020000	c LC010000	s LS010000	ѓ KG110000	“ SP210000	Ј KJ020000	і KI110000	Г KG020000	У KU020000	г KG010000	у KU010000
-4			$ SC030000	4 ND040000	D LD020000	T LT020000	d LD010000	t LT010000	„ SP230000	” SP220000	¤ SC010000	ґ KG290000	Д KD020000	Ф KF020000	д KD010000	ф KF010000
-5			% SM020000	5 ND050000	E LE020000	U LU020000	e LE010000	u LU010000	… SV520000	• SM570000	Ґ KG300000	µ SM170000	Е KE020000	Х KH020000	е KE010000	х KH010000
-6			& SM030000	6 ND060000	F LF020000	V LV020000	f LF010000	v LV010000	† SM340000	– SS680000	¦ SM650000	¶ SM250000	Ж KZ220000	Ц KC020000	ж KZ210000	ц KC010000
-7			' SP050000	7 ND070000	G LG020000	W LW020000	g LG010000	w LW010000	‡ SM350000	— SM900000	§ SM240000	· SD630000	З KZ020000	Ч KC220000	з KZ010000	ч KC210000
-8			(SP060000	8 ND080000	H LH020000	X LX020000	h LH010000	x LX010000	€ SC200000		Ё KE180000	ё KE170000	И KI020000	Ш KS220000	и KI010000	ш KS210000
-9			) SP070000	9 ND090000	I LI020000	Y LY020000	i LI010000	y LY010000	‰ SM560000	™ SM540000	© SM520000	№ SM000000	Й KJ120000	Щ KS160000	й KJ110000	щ KS150000
-A			* SM040000	: SP130000	J LJ020000	Z LZ020000	j LJ010000	z LZ010000	Љ KL420000	љ KL410000	Є KE160000	є KE150000	К KK020000	Ъ KU220000	к KK010000	ъ KU210000
-B			+ SA010000	; SP140000	K LK020000	[SM060000	k LK010000	{ SM110000	‹ SP270000	› SP280000	« SP170000	» SP180000	Л KL020000	Ы KY020000	л KL010000	ы KY010000
-C			, SP080000	< SA030000	L LL020000	\ SM070000	l LL010000	| SM130000	Н KN120000	н KN110000	¬ SM660000	j KJ010000	М KM020000	Ь KX120000	м KM010000	ь KX110000
-D			- SP100000	= SA040000	M LM020000	] SM080000	m LM010000	} SM140000	Ќ KK120000	ќ KK110000	(SHY) SP320000	S KZ160000	Н KN020000	Э KE140000	н KN010000	э KE130000
-E			. SP110000	> SA050000	N LN020000	^ SD150000	n LN010000	~ SD190000	Ћ KC120000	ћ KC110000	® SM530000	s KZ150000	О KO020000	Ю KU160000	о KO010000	ю KU150000
-F			/ SP120000	? SP150000	O LO020000	_ SP090000	o LO010000		Џ KG220000	џ KG210000	Ї KI180000	ї KI170000	П KP020000	Я KA160000	п KP010000	я KA150000

Figure 41.Cyrillic(CP1251)

Latin1 Ansi Windows

Code Page 01252

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00				0	@	P	`	p	€			°	À	Ð	à	ð
01			!	1	A	Q	a	q		‘	¡	±	Á	Ñ	á	ñ
02			"	2	B	R	b	r	‚	´	¢	²	Â	Ò	â	ò
03			#	3	C	S	c	s	ƒ	¨	£	³	Ã	Ó	ã	ó
04			$	4	D	T	d	t	„	¨	¤	´	Ä	Ô	ä	ô
05			%	5	E	U	e	u	…	•	¥	µ	Å	Õ	å	õ
06			&	6	F	V	f	v	†	¯	¦	¶	Æ	Ö	æ	ö
07			'	7	G	W	g	w	‡	¯	§	·	Ç	×	ç	÷
08			(	8	H	X	h	x	ˆ	˜	¨	¸	È	Ø	è	ø
09			)	9	I	Y	i	y	‰	™	©	¹	É	Ù	é	ù
0A			*	:	J	Z	j	z	Š	š	ª	º	Ê	Ú	ê	ú
0B			+	;	K	[	k	{	‹	›	«	»	Ë	Û	ë	û
0C			,	<	L	\	l	|	Œ	œ	¬	¼	Ì	Ü	ì	ü
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Figure 42.Latin1AnsiWindows(CP1252)

Greek Windows

Code Page 01253

	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0		0	@	P		p	€			°	ΐ	Π	ΰ	π
1	!	1	A	Q	a	q		‘	΄	±	Α	Ρ	α	ρ
2	"	2	B	R	b	r	‚	’	Ά	²	Β		β	ς
3	#	3	C	S	c	s	ƒ	“	£	³	Γ	Σ	γ	σ
4	$	4	D	T	d	t	„	”	¤	΄	Δ	Τ	δ	τ
5	%	5	E	U	e	u	…	•	¥	µ	Ε	Υ	ε	υ
6	&	6	F	V	f	v	†	–	¦	¶	Ζ	Φ	ζ	φ
7	'	7	G	W	g	w	‡	—	§	·	Η	Χ	η	χ
8	(	8	H	X	h	x			¨	Έ	Θ	Ψ	θ	ψ
9	)	9	I	Y	i	y	‰	™	©	Ή	Ι	Ω	ι	ω
A	*	:	J	Z	j	z				Ί	Κ	Ϊ	κ	ϊ
B	+	;	K	[	k	{	‹	›	«	»	Λ	Ϋ	λ	ϋ
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Figure 43.GreekWindows(CP1253)

Turkish Windows

Code Page 01254

	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0		0	@	P	`	p	€			°	À	Ğ	à	ğ
1	!	1	A	Q	a	q		‘	¡	±	Á	Ñ	á	ñ
2	"	2	B	R	b	r	‚	’	¢	²	Â	Ò	â	ò
3	#	3	C	S	c	s	ƒ	“	£	³	Ã	Ó	ã	ó
4	$	4	D	T	d	t	„	”	¤	´	Ä	Ô	ä	ô
5	%	5	E	U	e	u	…	•	¥	µ	Å	Õ	å	õ
6	&	6	F	V	f	v	†	–	¦	¶	Æ	Ö	æ	ö
7	'	7	G	W	g	w	‡	—	§	·	Ç	×	ç	÷
8	(	8	H	X	h	x	ˆ	˜	¨	¸	È	Ø	è	ø
9	)	9	I	Y	i	y	‰	™	©	¹	É	Ù	é	ù
A	*	:	J	Z	j	z	Š	š	ª	º	Ê	Ú	ê	ú
B	+	;	K	[	k	{	‹	›	«	»	Ë	Û	ë	û
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Figure 44.TurkishWindows(CP1254)

Hebrew Windows

Code Page 01255

	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0		0	@	P	`	p	€			°	ְ	ִ	א	ן
1	!	1	A	Q	a	q		‘		±	ֱ	ֵ	ב	ס
2	"	2	B	R	b	r	‚	’	¢	²	ֲ	ֶ	ג	ע
3	#	3	C	S	c	s	ƒ	“	£	³	ֳ	ַ	ד	ף
4	$	4	D	T	d	t	„	”	₪	´	ִ	ָ	ה	פ
5	%	5	E	U	e	u	…	•	¥	µ	ֵ	ֹ	ו	ץ
6	&	6	F	V	f	v	†	–	¦	¶	ֶ	ּ	ז	צ
7	'	7	G	W	g	w	‡	—	§	·	ַ	ֻ	ח	ק
8	(	8	H	X	h	x	ˆ	˜	¨	¸	ָ	ּ	ט	ר
9	)	9	I	Y	i	y	‰	™	©	¹	ֹ		י	ש
A	*	:	J	Z	j	z			×	÷			ך	ת
B	+	;	K	[	k	{	‹	›	«	»	ֻ		כ	
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Figure 45.HebrewWindows(CP1255)

Arabic Windows

Code Page 01256

	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0		0	@	P	`	p	€	ی		°	ـ	د	à	ً
1	!	1	A	Q	a	q	پ	‘	،	±	ء	ر	ل	ٌ
2	"	2	B	R	b	r	‚	’	¢	²	آ	ز	â	ٍ
3	#	3	C	S	c	s	ƒ	“	£	³	أ	س	م	َ
4	$	4	D	T	d	t	„	”	¤	´	ؤ	ش	ن	ô
5	%	5	E	U	e	u	…	•	¥	µ	إ	ص	ه	ُ
6	&	6	F	V	f	v	†	–	¦	¶	ئ	ض	و	ِ
7	'	7	G	W	g	w	‡	—	§	·	ا	×	ç	÷
8	(	8	H	X	h	x	ˆ	ی	¨	¸	ب	ط	è	ّ
9	)	9	I	Y	i	y	‰	™	©	¹	ة	ظ	é	ù
A	*	:	J	Z	j	z	ث	ن	ª	؛	ت	ع	ê	ْ
B	+	;	K	[	k	{	‹	›	«	»	ث	غ	ë	û
C	,	<	L	\	l	|	Œ	œ	¬	¼	ج	ـ	ى	ü
D	–	=	M	]	m	}	ج			½	ح	ف	ي	
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F	/	?	O	_	o		د	ں	¯	؟	د	ك	أ	ء

Figure 46.ArabicWindows(CP1256)

Baltic Windows

Code Page 01257

	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0		0	@	P	`	p	€			°	Ą	Ś	ą	ś
1	!	1	A	Q	a	q		‘		±	Ī	Ń	ī	ń
2	"	2	B	R	b	r	‚	’	¢	²	Ā	Ņ	ā	ō
3	#	3	C	S	c	s		“	£	³	Ć	Ó	ć	ó
4	$	4	D	T	d	t	„	”	¤	´	Ä	Ō	ä	ō
5	%	5	E	U	e	u	…	•		µ	Å	Õ	å	õ
6	&	6	F	V	f	v	†	–	¦	¶	Ę	Ö	ę	ö
7	'	7	G	W	g	w	‡	—	§	·	Ē	×	ē	÷
8	(	8	H	X	h	x			Ø	ø	Č	Ų	č	ų
9	)	9	I	Y	i	y	‰	™	©	¹	É	Ł	é	ł
A	*	:	J	Z	j	z			Ŗ	ŗ	Ź	Ś	ź	ś
B	+	;	K	[	k	{	‹	›	«	»	Ė	Ū	ė	ū
C	,	<	L	\	l	|			¬	¼	Ģ	Ü	ģ	ü
D	-	=	M	]	m	}	¨	˜	–	½	Ķ	Ž	ķ	ž
E	.	>	N	^	n	~	ˇ	˛	®	¾	Ī	Ž	ī	ž
F	/	?	O	_	o		˙		Æ	æ	Ļ	ß	]	˙

Figure 47.Batlic Windows (CP1257)

MAZOWIA (Polish)

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	Ø	►		0	@	P	`	p	Ç	Ę	Ź	░	└	╨	α	≡
01	☺	◄	!	1	A	Q	a	q	ü	ę	Ż	▒	┴	╥	ß	±
02	☻	↕	"	2	B	R	b	r	é	ł	ó	▓	┬	╤	Γ	≥
03	♥	‼	#	3	C	S	c	s	â	ô	Ó	│	├	╙	π	≤
04	♦	¶	$	4	D	T	d	t	ä	ö	ń	┤	─	╘	Σ	⌠
05	♣	§	%	5	E	U	e	u	à	Ć	Ń	╡	┼	╒	σ	⌡
06	♠	▬	&	6	F	V	f	v	ą	û	ź	╢	╞	╓	µ	÷
07	•	↨	'	7	G	W	g	w	ç	ù	ż	╖	╟	╫	τ	≈
08	◘	↑	(	8	H	X	h	x	ê	ś	Ł	╕	╠	╪	Φ	°
09	○	↓	)	9	I	Y	i	y	ë	Ö	⌐	╣	╦	┘	Θ	•
0A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	─
0B	♂	←	+	;	K	[	k	{	ï	§	½	╗	╦	█	δ	√
0C	♀	∟	,	<	L	\	l	|	î	Ł	¼	╝	╬	▄	∞	ⁿ
0D	♪	↔	–	=	M	]	m	}	ć	¥	¡	╜	═	▌	ϕ	²
0E	♫	▲	.	>	N	^	n	~	Ä	ś	«	╛	╧	▐	ε	■
0F	☼	▼	/	?	O	_	o	⌂	Ą	ƒ	»	┐	╨	▀	∩	

Figure 48.MAZOWIA(Polish)

GOST (Russian)

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	∅	►		0	@	P	`	p	╧	╗	┌	А	Р	а	р	Ё
01	☺	◄	!	1	A	Q	a	q	╨	╖	┐	Б	С	б	с	ё
02	☻	↕	"	2	B	R	b	r	╤	╝	┘	В	Т	в	т	╱
03	♥	‼	#	3	C	S	c	s	╡	╜	└	Г	У	г	у	╲
04	♦	¶	$	4	D	T	d	t	╢	=	–	Д	Ф	д	ф	╳
05	♣	§	%	5	E	U	e	u	╖	╢	│	Е	Х	е	х	╲
06	♠	▬	&	6	F	V	f	v	╕	╥	┬	Ж	Ц	ж	ц	→
07	•	↨	'	7	G	W	g	w	╗	╣	┤	З	Ч	з	ч	←
08	◘	↑	(	8	H	X	h	x	╜	╩	┴	И	Ш	и	ш	↑
09	○	↓	)	9	I	Y	i	y	╛	╬	├	Й	Щ	й	щ	↓
0A	◙	→	*	:	J	Z	j	z	┘	╫	┼	К	Ъ	к	ъ	÷
0B	♂	←	+	;	K	[	k	{	╙	╟	╒	Л	Ы	л	ы	±
0C	♀	∟	,	<	L	\	l	|	╘	╞	▄	М	Ь	м	ь	№
0D	♪	↔	–	=	M	]	m	}	╞	╠	▌	Н	Э	н	э	¤
0E	♫	▲	.	>	N	^	n	~	╟	╬	▐	О	Ю	о	ю	▪
0F	☼	▼	/	?	O	_	o	⌂	╗	╪	▀	П	Я	п	я	

Figure 49.GOST(Russian)

TASS (Cyrillic)

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	Ø	►		0	@	P	`	p	А	Р	а	▒	└	╨	р	Ё
01	⊕	◄	!	1	A	Q	a	q	Б	С	б	▓	┴	╥	с	ё
02	●	↕	"	2	B	R	b	r	В	Т	в	╫	┬	╤	т	/
03	♥	‼	#	3	C	S	c	s	Г	У	г	│	├	╙	у	\
04	♦	¶	$	4	D	T	d	t	Д	Ф	д	┤	─	╘	ф	/
05	♣	§	%	5	E	U	e	u	Е	Х	е	╡	┼	╒	х	\
06	♠	▬	&	6	F	V	f	v	Ж	Ц	ж	╢	╞	╓	ц	→
07	•	↨	'	7	G	W	g	w	З	Ч	з	╖	╟	╫	ч	←
08	◘	↑	(	8	H	X	h	x	И	Ш	и	╕	╚	╪	ш	↑
09	○	↓	)	9	I	Y	i	y	Й	Щ	й	╣	╔	┘	щ	↓
0A	◙	→	*	:	J	Z	j	z	К	Ъ	к	║	╩	┌	ъ	÷
0B	♂	←	+	;	K	[	k	{	Л	Ы	л	╗	╦	█	ы	±
0C	♀	∟	,	<	L	\	l	|	М	Ь	м	╝	╠	▄	ь	№
0D	♪	↔	-	=	M	]	m	}	Н	Э	н	╜	═	▌	э	¤
0E	♫	▲	.	>	N	^	n	~	О	Ю	о	╛	╬	▐	ю	■
0F	☼	▼	/	?	O	_	o	⌂	П	Я	п	┐	╧	▀	я	▌

Figure 50.TASS(Cyrillic)

UKRANIAN (old version)

	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0		0	@	P	`	p	А	Р	а	░	└	╨	р	Ё
1	!	1	A	Q	a	q	Б	С	б	▒	┴	╤	с	ё
2	"	2	B	R	b	r	В	Т	в	▓	┬	╥	т	Ґ
3	#	3	C	S	c	s	Г	У	г	│	├	╙	у	Ґ
4	$	4	D	T	d	t	Д	Ф	д	┤	─	╘	ф	Є
5	%	5	E	U	e	u	Е	Х	е	╡	┼	╒	х	є
6	&	6	F	V	f	v	Ж	Ц	ж	╢	╞	╓	ц	І
7	'	7	G	W	g	w	З	Ч	з	╖	╟	╫	ч	і
8	(	8	H	X	h	x	И	Ш	и	╕	╠	╪	ш	Ї
9	)	9	I	Y	i	y	Й	Щ	й	╣	╦	┘	щ	Ї
A	*	:	J	Z	j	z	К	Ъ	к	║	╩	┌	ъ	
B	+	;	K	[	k	{	Л	Ы	л	╗	╤	█	ы	
C	,	<	L	\	l	|	М	Ь	м	╝	╧	▄	ь	№
D	-	=	M	]	m	}	Н	Э	н	╜	═	▌	э	
E	.	>	N	^	n	~	О	Ю	о	╛	╬	▐	ю	
F	/	?	O	_	o		П	Я	п	╖	╩	▀	я	

Figure 51.UKRANIAN(oldversion)

KOI8-U (new version)

	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0		0	@	P	`	p	─	░	═	╠	ю	п	Ю	П
1	!	1	A	Q	a	q	│	▒	║	╡	а	я	А	Я
2	"	2	B	R	b	r	┌	▓	╒	╢	б	р	Б	Р
3	#	3	C	S	c	s	┐	⌠	ё	Ё	ц	с	Ц	С
4	$	4	D	T	d	t	└	■	є	Є	д	т	Д	Т
5	%	5	E	U	e	u	┘	•	╓	╣	е	у	Е	У
6	&	6	F	V	f	v	├	⌡	і	І	ф	ж	Ф	Ж
7	'	7	G	W	g	w	┤	─	ї	Ї	г	в	Г	В
8	(	8	H	X	h	x	┬	№	╗	╦	х	ь	Х	Ь
9	)	9	I	Y	i	y	┴	™	╘	╩	и	ы	И	Ы
A	*	:	J	Z	j	z	┼		╙	╨	й	з	Й	З
B	+	;	K	[	k	{	▀	»	╚	╩	к	ш	К	Ш
C	,	<	L	\	l	|	▄	®	╛	╬	л	э	Л	Э
D	–	=	M	]	m	}	▌	«	╜	╦	м	щ	М	Щ
E	.	>	N	^	n	~	▐	·	╝	╧	н	ч	Н	Ч
F	/	?	O	_	o		▌	¤	╞	©	о	ъ	О	Ъ

Figure 52.KOI8-U(newversion)

FARSI 1

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00		►		0	@	P	`	p	۰	۱	ع	▒	└	╨	ظ	ک
01	☻	◄	!	1	A	Q	a	q	۱	ـا	خ	▒	┴	╤	غ	ل
02	●	↕	"	2	B	R	b	r	۲	ب	د	▓	┬	╥	ج	لا
03	♥	‼	#	3	C	S	c	s	۳	پ	ذ	│	├	╦	هـ	ـل
04	♦	¶	$	4	D	T	d	t	۴	ت	ر	┤	─	╠	ـه	م
05	♣	§	%	5	E	U	e	u	۵	ث	ز	╡	┼	═	ع	ـم
06	♠	▬	&	6	F	V	f	v	۶	ج	ژ	╢	╞	╬	غ	ن
07	•	↨	'	7	G	W	g	w	۷	چ	س	╖	╟	╧	ف	ـن
08	◘	↑	(	8	H	X	h	x	۸	ح	ش	╕	╠	╨	ق	و
09	○	↓	)	9	I	Y	i	y	۹	خ	ص	╣	╡	╙	ک	ه
0A	■	→	*	:	J	Z	j	z	،	د	ض	║	╢	╓	گ	ـه
0B	♂	←	+	;	K	[	k	{	ـ	ذ	ط	╗	╥	╫	ل	ه
0C	♀	∟	,	<	L	\	l	|	؟	ر	ظ	╘	╞	▄	گ	ی
0D	♪	↔	-	=	M	]	m	}	آ	ز	ع	╛	═	▌	ی	ی
0E	♫	▲	.	>	N	^	n	~	ء	ژ	غ	╜	╪	▐	ی	ـی
0F	☼	▼	/	?	O	_	o	⌂	،	ص	ف	┐	╧	▀	ی	

Figure 53. Farsi 1

FARSI 2

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00		►		0	@	P	`	p	۰	ء	ذ	▒	╙	╨	ظ	لا
01	☺	◄	!	1	A	Q	a	q	۱	ـ	غ	▒	╜	╥	ع	ل
02	☻	↕	"	2	B	R	b	r	۲	آ	د	▓	╖	╤	غ	ل
03	♥	‼	#	3	C	S	c	s	۳	أ	ذ	│	╗	╦	ع	م
04	♦	¶	$	4	D	T	d	t	۴	ب	ر	┤	╘	╠	غ	م
05	♣	§	%	5	E	U	e	u	۵	ة	ز	╡	╒	═	ف	ن
06	♠	▬	&	6	F	V	f	v	۶	ت	ژ	╢	╓	╬	ف	ن
07	•	↨	'	7	G	W	g	w	۷	ث	س	╖	╫	╧	ق	و
08	◘	↑	(	8	H	X	h	x	۸	ج	ش	╕	╪	╨	ق	ه
09	○	↓	)	9	I	Y	i	y	۹	چ	ص	╣	╙	╩	ک	ی
0A	◙	→	*	:	J	Z	j	z	×	ح	ض	║	╚	╥	گ	ه
0B	♂	←	+	;	K	[	k	{	+	خ	ط	╗	╤	╦	گ	ه
0C	♀	∟	,	<	L	\	l	|	؟	د	ظ	╝	╛	╠	ک	ی
0D	♪	↔	-	=	M	]	m	}	،	ذ	ع	╜	═	╣	گ	ی
0E	♫	▲	.	>	N	^	n	~	٠	ر	غ	╛	╬	╩	گ	ی
0F	☼	▼	/	?	O	_	o	⌂	،	ز	ف	┐	╧	═	لا	

Figure 54. Farsi 2

Kamenicky

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	NUL		SP	0	@	P	`	p	Č	É	á	░	└	╨	α	≡
01		DC1	!	1	A	Q	a	q	ü	ž	í	▒	┴	╤	ß	±
02			"	2	B	R	b	r	é	Ž	ó	▓	┬	╥	Γ	≥
03	ETX	DC3	#	3	C	S	c	s	ď	ô	ú	│	├	╙	π	≤
04			$	4	D	T	d	t	ä	ö	ň	┤	─	╘	Σ	⌠
05	ENQ	§	%	5	E	U	e	u	Ď	Ó	Ň	╡	┼	╒	σ	⌡
06	ACK		&	6	F	V	f	v	Ť	ů	Ů	╢	╞	╓	µ	÷
07	BEL		'	7	G	W	g	w	č	Ú	ô	╖	╟	╫	τ	≈
08	BS		(	8	H	X	h	x	ě	ý	š	╕	╚	╪	Φ	°
09	HT		)	9	I	Y	i	y	Ě	Ö	ř	╣	╔	┘	Θ	•
0A	LF		*	:	J	Z	j	z	Ľ	Ü	ŕ	║	╩	┌	Ω	·
0B	VT	ESC	+	;	K	[	k	{	ť	Š	Ř	╗	╦	█	δ	√
0C	FF		,	<	L	\	l	|	Ť	Ľ	¼	╝	╠	▄	∞	ⁿ
0D	CR		-	=	M	]	m	}	Ť	Ý	¡	╜	═	▌	∅	²
0E	SO		.	>	N	^	n	~	Ň	Ř	«	╛	╬	▐	ε	■
0F	SI		/	?	O	_	o	DEL	Ů	Ť	»	┐	╧	▀	∩	

Figure 55.Kamenicky

CWI

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	NUL		SP	0	@	P	`	p	Ç	É	á	░	└	╨	α	≡
01		DC1	!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	ß	±
02			"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
03	ETX	DC3	#	3	C	S	c	s	â	ö	ú	│	├	╙	π	≤
04			$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
05	ENQ	§	%	5	E	U	e	u	à	ó	Ñ	╡	┼	╒	σ	⌡
06	ACK		&	6	F	V	f	v	å	ü	ª	╢	╞	╓	µ	÷
07	BEL		'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
08	BS		(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
09	HT		)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	∙
0A	LF		*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
0B	VT	ESC	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
0C	FF		,	<	L	\	l	|	î	£	¼	╝	╠	▄	∞	ⁿ
0D	CR		-	=	M	]	m	}	ì	¥	¡	╜	═	▌	ϕ	²
0E	SO		.	>	N	^	n	~	Ä	₧	«	╛	╬	▐	ε	■
0F	SI		/	?	O	_	o	DEL	Å	ƒ	»	┐	╧	▀	∩	

Figure 56.CWI

Roman-8

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p				¯	â	Å	Á	Þ
1			!	1	A	Q	a	q			À	Ý	ê	î	Ã	þ
2			"	2	B	R	b	r			Â	ý	ô	Ø	ã	·
3			#	3	C	S	c	s			È	°	û	Æ	Ð	µ
4			$	4	D	T	d	t			Ê	Ç	á	å	ð	¶
5			%	5	E	U	e	u			Ë	ç	é	í	Í	¾
6			&	6	F	V	f	v			Î	Ñ	ó	ø	Ì	—
7			'	7	G	W	g	w			Ï	ñ	ú	æ	Ó	¼
8			(	8	H	X	h	x			´	¡	à	Ä	Ò	½
9			)	9	I	Y	i	y			`	¿	è	ì	Õ	ª
A			*	:	J	Z	j	z			^	¤	ò	Ö	õ	º
B			+	;	K	[	k	{			¨	£	ù	Ü	Š	«
C			,	<	L	\	l	|			~	¥	ä	É	š	▪
D			-	=	M	]	m	}			Ù	§	ë	ï	Ú	»
E			.	>	N	^	n	~			Û	ƒ	ö	ß	Ÿ	±
F			/	?	O	_	o	▒			£	¢	ü	Ô	ÿ	

Figure 57.Roman-8

IN2

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	Ø	►		0	@	P	`	p	Ç	É	á	░	└	ð	Ó	-
01	☺	◄	!	1	A	Q	a	q	ü	æ	í	▒	┴	Ð	ß	±
02	☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	Ê	Ô	‗
03	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ò	¾
04	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	È	õ	¶
05	♣	§	%	5	E	U	e	u	à	ò	Ñ	Á	┼	ı	Õ	§
06	♠	▬	&	6	F	V	f	v	å	û	ª	Â	ã	Í	µ	÷
07	•	↨	'	7	G	W	g	w	ç	ù	º	À	Ã	Î	þ	¸
08	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	©	╚	Ï	Þ	°
09	○	↓	)	9	I	Y	i	y	ë	Ö	®	╣	╔	┘	Ú	¨
0A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Û	·
0B	♂	←	+	;	K	[	k	{	ï	ø	½	╗	╦	█	Ù	¹
0C	♀	∟	,	<	L	\	l	|	î	£	¼	╝	╠	▄	ý	³
0D	♪	↔	-	=	M	]	m	}	ì	Ø	¡	¢	═	¦	Ý	²
0E	♫	▲	.	>	N	^	n	~	Ä	×	«	¥	╬	Ì	¯	■
0F	☼	▼	/	?	O	_	o	⌂	Å	ƒ	»	┐	¤	▀	´	

Figure 58.IN2

Turkish

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	Ø	►		0	@	P	`	p	Ç	É	á		└	╨	α	≡
01	☺	◄	!	1	A	Q	a	q	ü	æ	í		┴	╥	ß	±
02	☻	↕	"	2	B	R	b	r	é	Æ	ó		┬	╤	Γ	≥
03	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
04	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
05	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
06	♠	▬	&	6	F	V	f	v	a	û	ğ	╢	╞	╓	µ	÷
07	•	↨	'	7	G	W	g	w	ç	ù	Ğ	╖	╟	╫	τ	≈
08	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
09	○	↓	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	Θ	∙
0A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
0B	♂	←	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
0C	♀	∟	,	<	L	\	l	|	î	£	¼	╝	╠	▄	∞	ⁿ
0D	♪	↔	–	=	M	]	m	}	ı	¥	¡	╜	═	▌	ϕ	²
0E	♫	▲	.	>	N	^	n	~	Ä	Ş	«	╛	╬	▐	ε	■
0F	☼	▼	/	?	O	_	o	⌂	A	ş	»	┐	╧	▀	∩	

Figure 59.Turkish

Bulgarian

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00				0	@	P	`	p	€			°	А	Р	а	р
01			!	1	A	Q	a	q		‘	Ч	±	Б	С	б	с
02			"	2	B	R	b	r		’	ъ	а	В	Т	в	т
03			#	3	C	S	c	s		“	э	ё	Г	У	г	у
04			$	4	D	T	d	t	„	”	ю	ù	Д	Ф	д	ф
05			%	5	E	U	e	u	…	•	я	ò	Е	Х	е	х
06			&	6	F	V	f	v		–	ы	¶	Ж	Ц	ж	ц
07			'	7	G	W	g	w		—	§	‹	З	Ч	з	ч
08			(	8	H	X	h	x				›	И	Ш	и	ш
09			)	9	I	Y	i	y		™	©	№	Й	Щ	й	щ
0A			*	:	J	Z	j	z			!	ь	К	Ъ	к	ъ
0B			+	;	K	[	k	{			«	»	Л	Ы	л	ы
0C			,	<	L	\	l	|		Ä		э	М	Ь	м	ь
0D			-	=	M	]	m	}		Ë		ю	Н	Э	н	э
0E			.	>	N	^	n	~		Й	●	я	О	Ю	о	ю
0F			/	?	O	_	o			Ò		ы	П	Я	п	я

Figure 60. Bulgarian

96 GREEK

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	NUL		SP	0	@	P	`									
01		DC1	!	1	A	Q	A	Π								
02		DC2	"	2	B	R	B	Ρ								
03		DC3	#	3	C	S	Γ	Σ								
04		DC4	$	4	D	T	Δ									
05			%	5	E	U	E	T								
06			&	6	F	V	Z	Y								
07	BEL		'	7	G	W	H	Φ								
08	BS	CAN	(	8	H	X	Θ	X								
09	HT		)	9	I	Y	I	Ψ								
0A	LF		*	:	J	Z	K	Ω								
0B	VT	ESC	+	;	K	[	Λ	{								
0C	FF		,	<	L	\	M	|								
0D	CR		-	=	M	]	N	}								
0E	SO		.	>	N	^	Ξ	~								
0F	SI		/	?	O	_	O	DEL								SP

Figure 61. 96GREEK

Character Sets

Character Set 1

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	NUL		SP	0	@	P	’	p	NUL		á	░	└	╨	α	≡
01		DC1	!	1	A	Q	a	q		DC1	í	▒	┴	╤	ß	±
02		DC2	“	2	B	R	b	r		DC2	ó	▓	┬	╥	Γ	≥
03		DC3	#	3	C	S	c	s		DC3	ú	│	├	╙	π	≤
04		DC4	$	4	D	T	d	t		DC4	ñ	┤	─	╘	Σ	⌠
05			%	5	E	U	e	u			Ñ	╡	┼	╒	σ	⌡
06			&	6	F	V	f	v			ª	╢	╞	╓	µ	÷
07	BEL		‘	7	G	W	g	w	BEL		º	╖	╟	╫	τ	≈
08	BS	CAN	(	8	H	X	h	x	BS	CAN	¿	╕	╠	╪	Φ	°
09	HT		)	9	I	Y	i	y	HT		⌐	╣	╡	┘	Θ	∙
0A	LF		*	:	J	Z	j	z	LF		¬	║	╢	┌	Ω	·
0B	VT	ESC	+	;	K	[	k	{	VT	ESC	½	╗	╖	█	δ	√
0C	FF		,	<	L	\	l	|	FF		¼	╝	╜	▄	∞	ⁿ
0D	CR		-	=	M	]	m	}	CR		¡	╜	═	▌	φ	²
0E	SO		.	>	N	^	n	~	SO		«	╛	╞	▐	ε	■
0F	SI		/	?	O	_	o	DEL	SI		»	┐	╧	▀	∩	SP

Figure 62.CharacterSet1

Character Set 2

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	NUL		SP	0	@	P	’	p	Ç	É	á	╗	╘	╨	α	≡
01		DC1	!	1	A	Q	a	q	ü	æ	í	╝	╛	╤	ß	±
02	`	DC2	“	2	B	R	b	r	é	Æ	ó	╜	╘	╥	Γ	≥
03	♥	DC3	#	3	C	S	c	s	â	ô	ú	╚	╒	╙	π	≤
04	♦	DC4	$	4	D	T	d	t	ä	ö	ñ	╔	╓	╘	Σ	⌠
05	♣	§	%	5	E	U	e	u	à	ò	Ñ	╕	╖	╒	σ	⌡
06	♠		&	6	F	V	f	v	å	û	ª	╖	╕	╓	µ	÷
07	BEL		‘	7	G	W	g	w	ç	ù	º	╗	╗	╫	τ	≈
08	BS	CAN	(	8	H	X	h	x	ê	ÿ	¿	╖	╙	╪	Φ	°
09	HT		)	9	I	Y	i	y	ë	ö	⌐	╕	╗	╛	Θ	∙
0A	LF		*	:	J	Z	j	z	è	Ü	¬	╖	╜	╘	Ω	·
0B	VT	ESC	+	;	K	[	k	{	ï	¢	½	╗	╗	╘	δ	√
0C	FF		,	<	L	\	l	|	î	£	¼	╝	╝	■	∞	ⁿ
0D	CR		-	=	M	]	m	}	ì	¥	¡	╝	═	╘	φ	²
0E	SO		.	>	N	^	n	~	Ä	₧	«	╛	╝	╘	ε	■
0F	SI		/	?	O	_	o	DEL	Å	ƒ	»	╖	╜	■	∩	SP

Figure 63.CharacterSet2

Hexadecimal to Decimal Table

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
01	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
02	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
03	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
04	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
05	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
06	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
07	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
08	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
09	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
0A	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
0B	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
0C	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
0D	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
0E	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
0F	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

Figure 64.Hexadecimal to Decimal Table

Epson FX-series Code Pages

The following Epson code charts provide information on the character tables available for Epson FX-series emulation mode.

Extended Graphics Character

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			sp	0	@	P	‘	p	Ç	É	á	▒	╰	╩	α	≡
1			1	1	A	Q	a	q	ü	æ	í	⣿	┴	╥	β	±
2			"	2	B	R	b	r	é	Æ	ó	▓	┬	╦	Γ	≥
3			#	3	C	S	c	s	â	ô	ú	│	├	╠	π	≤
4			$	4	D	T	d	t	ä	ö	ñ	┤	─	╡	Σ	⌠
5			%	5	E	U	e	u	à	ò	Ñ	╢	┼	╒	σ	⌡
6			&	6	F	V	f	v	å	û	ª	╖	╞	╓	µ	÷
7			'	7	G	W	g	w	ç	ù	º	╕	╟	╫	τ	≈
8			(	8	H	X	h	x	ê	ÿ	¿	╗	╚	╪	Φ	°
9			)	9	I	Y	i	y	ë	Ö	⌐	╘	╔	┘	Θ	●
A			*	:	J	Z	j	z	è	Ü	¬	╙	╩	┌	Ω	•
B			+	;	K	[	k	{	ï	¢	½	╛	╦	█	δ	√
C			,	<	L	\	l	¦	î	£	¼	╜	╠	▄	∞	ⁿ
D			-	=	M	]	m	}	ì	¥	¡	╝	═	▌	φ	²
E			.	>	N	^	n	~	Ä	₧	≪	╛	╬	▐	ε	■
F			/	?	O	_	o		Å	ƒ	≫	┐	╧	▪	∩	Ø

Figure 65. Epson Extended Graphics Character

Italic Character Table

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			sp	0	@	P	‘	p				0	@	P	‘	p
1			!	1	A	Q	a	q			!	1	A	Q	a	q
2			"	2	B	R	b	r			"	2	B	R	b	r
3			#	3	C	S	c	s			#	3	C	S	c	s
4			$	4	D	T	d	t			$	4	D	T	d	t
5			%	5	E	U	e	u			%	5	E	U	e	u
6			&	6	F	V	f	v			&	6	F	V	f	v
7			'	7	G	W	g	w			’	7	G	W	g	w
8			(	8	H	X	h	x			(	8	H	X	h	x
9			)	9	I	Y	i	y			)	9	I	Y	i	y
A			*	:	J	Z	j	z			*	:	J	Z	j	z
B			+	;	K	[	k	{			+	;	K	[	k	{
C			,	<	L	\	l	¦			,	<	L	\	l	¦
D			−	=	M	]	m	}			−	=	M	]	m	}
E			.	>	N	∧	n	˜			.	>	N	∧	n	˜
F			/	?	O	_	o				/	?	O	_	o	{

Figure 66. Epson Italic Character

Epson Extended Character Variables

The following table shows characters that vary, by language, from the Epson Extended Character Graphics set.
The code points shown are the only ones that vary. For example, in the United Kingdom, only code point X'23' is different from the basic Epson table, shown on previous pages.

	Code Point (in hexadecimal)											
Country	**23**	**24**	**40**	**5B**	**5C**	**5D**	**5E**	**60**	**7B**	**7C**	**7D**	**7E**
U S A	#	$	@	[	\	]	^	'	{	¦	}	~
France			à	°	ç	§			é	ù	è	¨
Germany			§	Ä	Ö	Ü			ä	ö	ü	ß
U K	£											
Denmark - 1		$		Æ	Ø	Å			æ	ø	å	
Sweden		¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy				°	\	é		ù	à	ò	è	ì
Spain - 1	₧			¡	Ñ	¿			¨	ñ		
Japan					¥							
Norway		¤	É	Æ	Ø	Å	Ü	é	æ	ø	ø	ü
Denmark - 2			É	Æ	Ø	Å	Ü	é	æ	ø	ø	ü
Spain - 2			á	¡	Ñ	¿	é		í	ñ	ó	ú
Latin America I			á	¡	Ñ	¿	é	ü	í	ñ	ó	ú
French Canadian			á	â	ç	ê	î	ô	é	ù	è	û
Latin America II					Ñ		ú	í	ó	á	é	ü

Figure 67. Epson Extended Character Variables

ANSI National Variations

The following table shows characters that vary, by language, from the ANSI Extended Character Graphics set.

	33	35	36	38	39	42	59	64	91	92	93	94	96	113	123	124	125	126	(dec.)
USA	!	#	$	&	'	*	;	@	[	\	]	^	`	q	{	|	}	~	
German	!	#	$	&	'	*	;	§	Ä	Ö	Ü	^	`	q	ä	ö	ü	ß	
French A	!	£	$	&	'	*	;	à	°	ç	§	^	`	q	é	ù	è	¨	
French B	!	é	à	‡	'	è	;	è	à	\	ù	ê	ç	q	{	|	}	ô	
French/Canadian	!	#	$	&	'	*	;	à	à	ç	é	‡	ô	q	é	ù	è	û	
Netherlands	!	#	ƒ	&	'	*	;	@	[	\	]	^	`	q	´	|	ij	¨	
Italian	!	£	$	&	'	*	;	§	°	ç	é	^	ù	q	à	ò	è	ì	
United Kingdom	!	£	$	&	'	*	;	@	[	\	]	^	`	q	{	|	}	~	
Spanish	!	₧	$	&	'	*	;	@	¡	Ñ	¿	^	`	q	¨	ñ	}	~	
Danish/Norwegian A	!	#	$	&	'	*	;	@	Æ	Ø	Å	^	`	q	æ	ø	å	~	
Danish/Norwegian B	!	#	¤	&	'	*	;	@	Æ	Ø	Å	^	`	q	æ	ø	å	~	
Danish/Norwegian C	!	#	$	&	'	*	;	É	Æ	Ø	Å	Ü	é	q	æ	ø	å	ü	
Danish/Norwegian D	!	#	¤	&	'	*	;	É	Æ	Ø	Å	Ü	é	q	æ	ø	å	ü	
Swedish/Finnish A	!	#	$	&	'	*	;	@	Ä	Ö	Å	^	`	q	ä	ö	å	~	
Swedish/Finnish B	!	#	¤	&	'	*	;	@	Ä	Ö	Å	^	`	q	ä	ö	å	~	
Swedish/Finnish C	!	#	$	&	'	*	;	É	Ä	Ö	Å	Ü	é	q	ä	ö	å	ü	
Swedish/Finnish D	!	#	¤	&	'	*	;	É	Ä	Ö	Å	Ü	é	q	ä	ö	å	ü	
Switzerland	!	#	$	&	'	*	;	ç	à	é	è	^	`	q	ä	ö	ü	~	
USA (ISO)	!	#	$	&	'	*	;	@	[	\	]	^	`	q	{	|	}	~	
Yugoslavia	!	#	$	&	'	*	;	Ž	Š	Đ	Ć	Č	ž	q	š	đ	ć	č	
United Kingdom A	!	$	£	&	'	*	;	@	[	\	]	^	`	q	{	|	}	~	
Turkey	!	ğ	$	&	'	*	;	Ç	Ş	İ	Ö	Ü	ç	ğ	ş	ı	ö	ü	
Greece	Γ	Δ	$	Θ	Λ	*	Ξ	π	Σ	Φ	Ψ	Ω	`	q	{	|	}	~	
Cyrillic	!	#	$	&	'	*	;	@	[	\	]	^	`	q	{	|	}	~	
	21	23	24	26	27	2A	3B	40	5B	5C	5D	5E	60	71	7B	7C	7D	7E	(hex.)

Figure 68. ANSI National Variations

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Appendix B. Interfaces

This section provides technical information for the parallel and serial interfaces.

The Parallel Interface

The parallel interface of this printer fully supports the Centronics protocol plus the specific features requested by the EPSON and IBM printer connection in monodirectional mode and the Compatibility and Nibbles modes in bidirectional mode, plus the negotiation phases and the device identifier (as IEEE P1284).

The parallel interface is available on a specific 36 contact connector type AMPHENOL 57-40360- 12-D56 or equivalent connector for 1284 Type B.

- Drive Capability
  Up to 15 feet (5 m) on AWG26 min. wire size of twisted conductors on TTL receiver. The max. reachable distance is conditioned by the host drive capability and by the noise level along the interface cable path.
- Printer Connector Type
  36 pins, 1284 Type B
- Cable Connector
  25 pin, 1284 A Type

Signals Description

According to the IEEE - P1284 Standard, the pins assume different meanings and are identified by different names depending on the actual handshaking mode as follows:

- Compatibility mode (Centronics)
  This is the lower level mode provides an asynchronous, byte-wide forward (host-to-peripheral) channel with data and status lines used according to their original definitions. The interfaces power up in the compatibility Mode Idle phase.
- Nibble Mode
  This mode provides an asynchronous, reverse (peripheral-to-host) channel, under control of the host. In this mode, peripheral device to host data bytes are sent as two sequential, four-bit nibbles using the four peripheral-to-host status lines. These two modes cannot be active simultaneously.
- Byte Mode
  This mode provides an asynchronous, byte-wide reverse (peripheral-to host) channel based on eight data lines of the interface for data and the control/status lines for handshaking. Byte mode is under host control and it cannot be simultaneously active with compatibility mode.

Operating Phases

The link protocol is mainly based on the following three phases:

- Negotiation Phase
  This phase is activated always by the host, only when in compatibility mode, and defines:
  – whether a bidirectional link protocol can be established.
  – the handshaking mode as well as the communications mode to be used.
  – the device identification, if supported.
- Communication Phase
  This phase is based on well defined handshaking rules which depend upon the selected link mode.
- Termination Phase

This phase is initiated by the host and returns the interface to the compatibility mode.

Parallel Interface Signals

Description of the signals in monodirectional link:

Signal Name	Pin N°	Source	Description
STROBE	1	HOST	Clock signal which controls data transmission with its falling edge.
ACK	10	PRINTER	Negative pulsed signal indicating that the printer has received data and is ready to accept the next set of data. Also sent when the printer is switched from off-line to on-line and at the end of the initialization time. The BUSY line is always active.
DATA BIT 1	2	PRINTER / HOST	Data 8 is the most significant bit. These are the data lines used by host or printer to transfer control code or ASCII codes.
DATA BIT 2	3		
DATA BIT 3	4		
DATA BIT 4	5		
DATA BIT 5	6		
DATA BIT 6	7		
DATA BIT 7	8		
DATA BIT 8	9		
BUSY	11	PRINTER	When high, this signal indicates that the printer cannot accept data or control codes. This signal goes high during data processing, in test and program modes, during initialization, when the buffer is full, and when a paper jam, paper end or paper size error occurs, in case of a power-on reset, the reception of a STROBE signal, while the register was not yet read, or when the INIT line is still active.
PE	12	PRINTER	When high, this signal indicates that the automatic input bin is out of paper and paper cannot be loaded from an other bin.
SELECT	13	PRINTER	When high, this signal indicates that the printer is on-line. It is put to low state in case of initialization or test and program mode. In IBM Proprinter emulation in low condition this signal signals a off-line request from the operator panel, paper jam, paper end or paper size errors.
AUTOFEEDXT	14	HOST	Active low level signal. Indicates whether a LF is performed after a CR or not.
GND	16	–	Logical ground level (0V).
CHASSIS GND	17	–	Frame ground.
+5 VDC	18	PRINTER	Is the DC voltage supplied by a component that limits the driven capability up to 100 mA.
SIGNAL GND	19-30	–	Signal ground.
INIT	31	HOST	Active low level signal. Indicates, that the printer is initializing. The BUSY signal is forced high.
ERROR	32	PRINTER	When low, this signal indicates that the printer is offline, there is an offline request from the operator panel, or the printer is in an error state because of: paper jam, paper end or paper size error, engine error, output bin full or cover open condition.
+5V	35	PRINTER	Pulled up to signal.
SELECTIN	36	HOST	Active low level signal. Enables the printer.

The pins 1 to 14 of the printer are connected to the pins with the same number of the parallel port of the host.
The pins 19 to 30 of the printer are connected to the pins 18 to 25 of the parallel port of the host.
The pins 31, 32 and 36 of the printer are connected respectively to the pins 16, 15 and 17 of the parallel port of the host.
1284 Mode signal names are shown with their Compatibility mode (Centronics) names in parenthesis ( ) for the bidirectional link.

Signal Name	Pin N° for Signal Wire	Pin N° for Return Wire	Source
HostClk (nStrobe)	1	19	HOST
AD1 (Data 1)	2	20	HOST in Compatibility mode and negotiation phase.
AD2 (Data 2)	3	21	
AD3 (Data 3)	4	22	NOT USED in Nibble mode.
AD4 (Data 4)	5	23	
AD5 (Data 5)	6	24	BIDIRECTIONAL in Byte mode.
AD6 (Data 6)	7	25	
AD7 (Data 7)	8	26	
AD8 (Data 8)	9	27	
PrtClk (nAck)	10	28	PRINTER
PrtBusy (Busy)	11	29	PRINTER
AckDataReq (PError)	13	28	PRINTER
Xflag (Select)	14	28	PRINTER
HostBusy (nAutofd)	15	30	HOST
Peripheral Logic High (+5 V)	18		PRINTER
n.a. (nInit)	31	30	HOST
nDataAvail (NFault)	32	29	PRINTER
1284 Active (NSelectIn)	36	30	
Common Logic Ground	16 and Return Wires		
Chassis Ground	17		

Parallel Interface Signals Behaviour

HostClk /nWrite (nStrobe)

Compatibility Mode:	Set Active low to transfer data into printer input latch. Data is valid while nStrobe is low.
Negotiation Phase:	Set active low to transfer extendibility request value into printer input latch. Data is valid on the falling edge of HostClk.
Reverse Data Transfer Phase:	Set high during Nibble Mode transfer to avoid latching data into printer. Pulsed low during Byte Mode transfers to acknowledge transfer of data from the printer. The printer shall ensure that this pulse does not transfer a new data into the printer input latch.

AD1 ... AD8 (Data 1 ... Data 8)

Compatibility Mode:	Forward channel data.
Negotiation Phase:	Extendibility request value.
Reverse Data Transfer Phase:	Nibble Mode: NOT USED. Byte Mode: Reverse channel data.

PrtClk (nAck)

Compatibility Mode:	Pulsed low by the printer to acknowledge the transfer of a data from the host.
Negotiation Phase:	Set low to acknowledge 1284 support, then set high to indicate that the Xflag (Select) and data available flags may be read.
Reverse Data Transfer Phase:	Used in both Nibble and Byte Modes to qualify data being sent to the host.

PrtBusy (Busy)

Compatibility Mode:	Driven high to indicate that the printer is not ready to receive data.
Negotiation Phase:	Reflects the present state of the printer's forward channel.
Reverse Data Transfer Phase:	**Nibble Mode:** Data bits 3 then 7, then forward channel busy status **Byte Mode:** Forward channel busy status.

Reverse Idle phase: Forward channel busy status.

AckDataReq (PError)

Compatibility Mode:	Driven high to indicate that the printer has encountered an error in the paper path. The printer shall set nFault low whenever it sets PError high.
Negotiation Phase:	Set high to indicate 1284 support, then follows nDataAvail (nFault).
Reverse Data Transfer Phase:	**Nibble Mode:** Data bits then 6. **Byte Mode:** same as nDataAvail (nFault)
Reverse Idle phase:	Set high until host requests data transfer, then follows nDataAvail (nFault).

Xflag (Select)

Compatibility Mode:	Set high to indicate that the printer in on-line.
Negotiation Phase:	The Xflag refers to extendibility flag. Used by the printer to reply to the requested extendibility byte sent by the host during the negotiation phase. The signal level is low for Nibble Mode, high for Byte Mode.
Reverse Data Transfer Phase:	**Nibble Mode:** Data bits 1 then 5. **Byte Mode:** Same as negotiation phase.
Reverse Idle phase:	Same as negotiation phase.

Xflag (Select)

Compatibility Mode:	Set low by host to put the printer into auto-line feed mode.
Negotiation Phase:	Set low in conjunction with 1284 Active (NSelectIn) being set high to request a 1284 mode. Then set high after printer sets PtrClk (nAck) low.

Xflag (Select)

Reverse Data Transfer Phase:	**Nibble Mode:** Set low to indicate that host can receive printer-to-host data then set high to acknowledge receipts of that nibble. **Byte Mode:** Same as Nibble Mode to request and acknowledge bytes. Following a reverse channel transfer the interface transitions to idle phase when HostBusy (nAutoFd) is set low and printer's no data available.
Reverse Idle phase:	Set high in response to PtrClk (nAck) low pulse to re-enter reverse data transfer phase. Is set high with 1284 Active (nSelectIn) being set low, the 1284 idle phase is being aborted and the interface returns to Compatibility Mode.

Peripheral Logic High (+ 5V)

Set high to indicate that all other signals sourced by the printer are in valid state. Set low to indicate the printer is off.

n.a. (nInit)

Compatibility Mode:	Pulsed low in conjunction with 1284 Active low to reset the interface and force to return to Compatibility Mode idle phase.
Negotiation Phase:	Set HIGH.
Reverse Data Transfer Phase:	Set HIGH.

nDataAvail (NFault)

Compatibility Mode:	Set low to indicate that an internal printer error has occurred.
Negotiation Phase:	Set high to acknowledge 1284 compatibility. In Nibble or Byte Mode it is then set low to indicate printer-to-host data is available following host setting HostBusy (nAutoFd) high.
Reverse Data Transfer Phase:	**Nibble Mode:** Set low to indicate that printer is ready to send to host. Then used to send data bits 0 then 4. **Byte Mode:** Used to indicate that data is available.
Reverse Idle phase:	Used to indicate that data is available.

nDataAvail (NFault)

Compatibility Mode:	Set low to indicate that an internal printer error has occurred.
Negotiation Phase:	Set high to acknowledge 1284 compatibility. In Nibble or Byte Mode it is then set low to indicate printer-to-host data is available following host setting HostBusy (nAutoFd) high.
Reverse Data Transfer Phase:	**Nibble Mode:** Set low to indicate that printer is ready to send to host. Then used to send data bits 0 then 4. **Byte Mode:** Used to indicate that data is available.
Reverse Idle phase:	Used to indicate that data is available.

1284 Active (NSelectIn)

Compatibility Mode:	Set low by host to select printer.
Negotiation Phase:	Set high in conjunction with Host Busy being set low to request a 1284 mode.
Reverse Data Transfer Phase:	Set high to indicate that bus direction is printer to host. Set low to terminate 1284 mode and set bus direction host to printer.
Reverse Idle Phase:	Same as Reverse Data Transfer phase.

Interface Timing

Timing and Handshaking depend upon the connection mode.

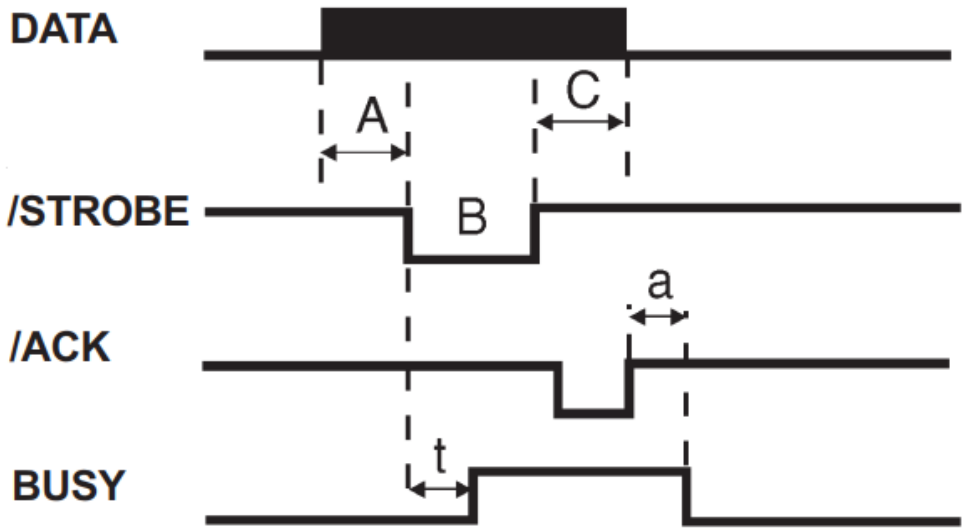

Figure 69. Mode Centronics

Our Centronics mode supports the BUSY-WHILE-STROBE busy signal timing and ACK-INBUSY as BUSY-ACK relationship.

Legend	Time interval	Min.	Max.	
A	Data Setup Time	1.0		
B	Strobe pulse width	1.0	500	
C	Data hold time	1.0		all times in µs
t	Busy while Strobe	0.25	1.0	
a	Ack in Busy	0	2.5	

Mode IEEE 1284

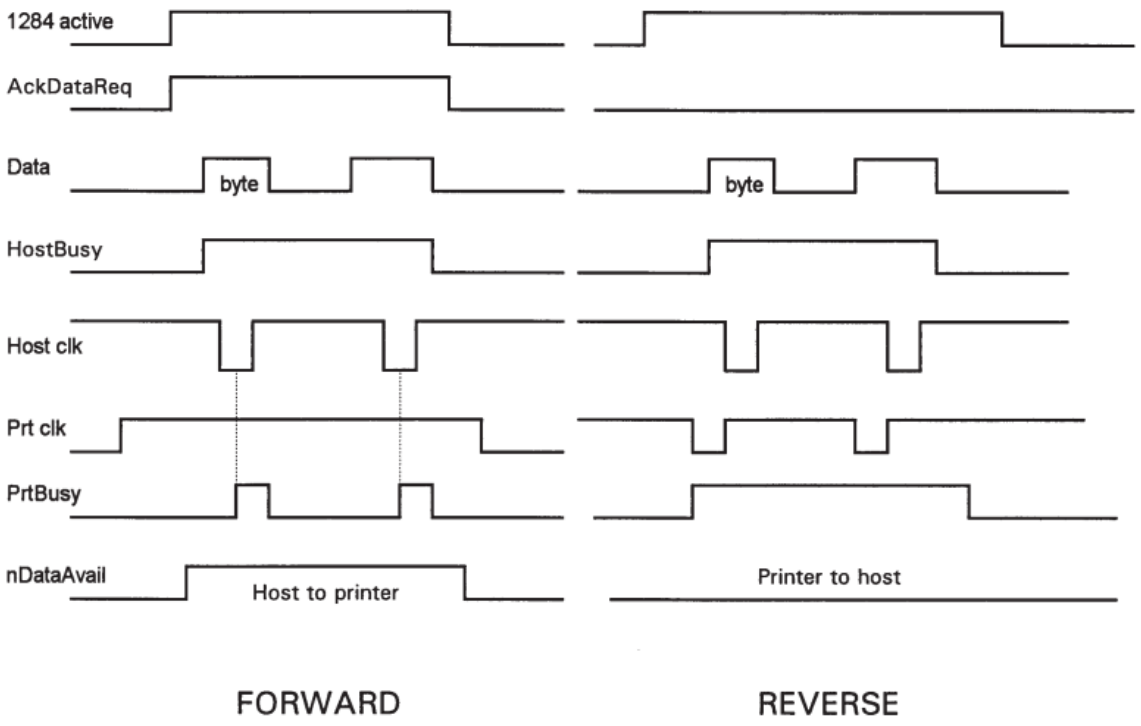

Figure 70. Mode IEEE 1284

The Serial Interface

This printer provides the RS-232/C serial interfaces. The interface mode is selected via menu.

- Transmission Type
  Data is sent and received in start/stop (asynchronous) transmission.
- Character Format
  Each character is transmitted in the following format:
  1 START BIT + 8 DATA BITS + 1 PARITY BIT + 1 STOP BIT
  The least significant bit of the data bits is sent first after the start bit. The number of data bits is selected via menu. The parity bit, when present, follows the data bits. The start bit is a logical “0” and the stop bit is a logical “1”. The start and stop bits are used as character framing bits.
- Printer Connector
  Male DB9 or equivalent connector.
- Drive Capability
  Max. 50 feet (15 m) for all supported data rates. The RS-422/A interface is effective up to 1200 m.

Serial Interface Signals

The following table lists the RS-232/C serial interface signals:

Signal Name	Pin Number	Local Connect. Source	Remote Connect. Source	Description
SIGNAL GROUND	5	–	–	Always connected to the 0 Volts of the Power Supply
TXD	3	Printer	Printer	Transmitted Data Signal (an output from printer). A MARK condition is held during IDLE communication state. An indeterminate state is present when printer is powered off.
RXD	2	Host	Data Set	Received data signal (an input to printer).
RTS	7	Printer	Printer	Request to Send Signal (an output from printer). Active HIGH level signal. It is HIGH until the printer is powered off, then an indeterminate state is present .
CTS	8		Data Set	Active HIGH level signal indicates that the host or data set is ready to receive data from the printer.
DSR	6		Data Set	Active HIGH level signal. Indicates that the host or data set is ready to be connected to the printer and is ready for data transfer.
DCD	1		Data Set	Active HIGH level signal. Indicates that the host is transmitting or the data set is r receiving the Data Carrier signal.
2nd RTS	9	Printer		Functionally equivalent to the DTR signal.
DTR	4	Printer	Printer	Data Terminal Ready. Normally HIGH (ON). Indicates that the printer is ready to initiate a connection.

LAN Interface Port

LAN Interface Port

1. Ethernet 10/100BaseT Connector
2. Green 10/100Mbit/sec. Transmission Speed LED
3. Yellow Traffic LED

LED Indicators

The LED indicator modes are described in the following table:

LED	Status	Description
Yellow LED	Unlit	Transmission speed at 10Mbit/sec.
	Lit	Transmission speed at 100Mbit/sec.
Green LED	Blinks	Transmitting or receiving packets from the network.

USB Interface Port

USB 2.0 full speed 12/Mbit/sec. interface.

Appendix C. Network Interface Technical Reference

Network Configuration Parameters

IP Address Assignment

Fixed: Assigns the static or fixed IP address.
DHCP: Assigns the dynamic IP address (DHCP protocol).
Default value is DHCP.

Fixed and DHCP assignments of IP addresses are supported. On most networks, you will want to assign a permanent IP address and disable DHCP.

IP Address

These values set the IP Address. The address is represented by a decimal notation where the decimal values are divided by points in four fields.

Each field ranges between 0 and 255.
Default is 127.000.000.000.

Subnet Mask

These values set the Subnet Mask number. This number is represented by a decimal notation where the decimal values are divided by points in four fields. Each field ranges between 0 and 255.

Default is 255.255.254.000.

Default Gateway

These values set the Default Gateway address. This address is represented by a decimal notation where the decimal values are divided by points in four fields. Each field ranges between 0 and 255.

Default is 000.000.000.000.

The gateway address tells the printer which router or gateway to use to access other subnets or hosts. Simply add your router's IP address as the default gateway. All packets destined for other subnets will be forwarded to the default gateway for delivery to the destination host.

Host Name

The host is identified by a name in the NetBIOS protocol over TCP/IP. This function allows creating the name of the host using a 14-character string.

Default is PTX_xxxxxx where xxxxxx are the last 6-digits of the MAC address...

Workgroup Name

The workgroup is identified by a name in the NetBIOS protocol over TCP/IP in Windows. This function allows creating the name of the workgroup using a 14-character string.

Default is Workgroup.

SMTP Service

SMTP (Simple Mail Transfer Protocol) allows a mail server address to be entered into the printer configuration to send automated e-mail notifications with printer alert conditions.

Disabled: Disables the SMTP (Simple Mail Transfer Protocol) service, that is disables the reception/transfer/error service of the e-mail.

Enabled: Enables the SMTP service, that is it enables the reception/transfer/error service of the e-mail.

Default is Disabled.

Mail Server Address

These values set the mail server address. This number is represented by a decimal notation where the decimal values are divided by points in four fields. Each field ranges between 0 and 255.

Default is 000.000.000.000.

Note: Item selection on the printer menu allowed only if the “SMTP Service” function choice is Enabled.

E-mail Address (Receiver)

This function allows writing the e-mail address where you can notify the failures using a 48-character string. Default is an empty string.

Note: Item selection on the printer menu allowed only if the “SMTP Service” function choice is Enabled.

E-mail Address (Sender)

This function allows to write the sender e-mail address using a 48-character string.

Default is an empty string.

Note: Item selection on the printer menu allowed only if the “SMTP Service” function choice is Enabled.

Location

You can enter the physical location of the printer into this field.

Contact

You can enter a network support contact’s name and phone number into this field.

Managing a Single Printer Configuration Using the Internal Webpage

Configuration Password

The Printronix S809's configuration settings can be protected by a password to keep unauthorized users from making changes. When you try to submit any Printronix S809 configuration change, you will be asked for your user name and password. At the prompt, enter the default user **name = root** and **default password = root**, unless you have setup another user name and password with root privileges.

Storing and Saving Settings

When settings are configured on the Printronix S809 and the SUBMIT button on the related page has been pressed, you will be reminded to Reboot the printer to ensure the latest settings are in use. To reset the Printronix S809, go to the Home page, enter the Power On Reset page, and Click on the REBOOT PRINTER button.

Managing Multiple Printers Using the Remote Printer

Management Utility

The Remote Printer Management Utility (RPMU) is a software tool for network administrator's that allows the configuration and control of Printronix S809 printers remotely over a LAN. With this tool the installed printers can be controlled, configured and organized easily. The main features are:

Device Discovery - Searches for the devices within a range of IP addresses.

Printer Organization - Printers connected to the network can be organized into logical groups in a hierarchically structured tree.

Printer Status Report - Checks the printer's status and reports alarms.

Printer Configuration - Printers may be configured as needed from the administrator's workstation. Change the configuration of single printers, or simultaneously change the configuration of multiple printers in your enterprise, anywhere, and anytime.

Firmware Updating - Provides a firmware download function to upgrade the printer's firmware.

Remote Operator Panel Management - Provides a virtual operator panel for the remotely connected printer at the administrator's workstation that allows performing all functions normally achieved pressing the operator panel keys. The RPMU also provides the basic status management for third-party printers compliant to the standard MIB objects. Visit our website to download this free software utility program.

Network Interface Summary

Table 5. Network Interface Summary

INSTALLATION INTEGRATION	
Network speed / connection	10/100 BASET
Auto-detection	10/100 network speed Yes
Manual network speed selection	No
Parallel interface free	Yes
Network configuration through printer operator panel	Yes
Web page network setting configuration	Yes
Web page login password protection	Yes
Web page default user-id and default password	Root, Root
Windows Port Monitor and Drivers	Yes, download from www.Printronix.com
NIC configuration printout	Yes

Table 5. Network Interface Summary (cont.)

DHCP	Yes
WINS	Yes
DDNS	Yes
SYSTEM / OS	
IBM System i OS 400	Yes
IBM pSeries® AIX	Yes
Sun Solaris	Yes
Unix	Yes
Linux®	Yes
Windows 95,98,2000,NT,XP, 2003 Server	Yes
Windows VISTA, Win7, Win8, Win10	Yes
NETBIOS over TCP	Yes
NETBEUI	No
Novell Netware	No
OS2	No
MacIntosh / Apple EtherTalk	No
PRINTING METHODS	
Raw Port 9100	Yes
LPD/LPR Port 515	Yes
LPR print queue name	Any name (PR1, d1PRN, etc.) can be used.
IPDS Port 5100	Yes (with IPDS option on some models)
Interleaved multi-protocol communications	Yes
Hot Interface switching	Yes between Parallel and LAN interfaces
Hot Port switching	Yes between Raw 9100, LPR/LPD 515, and IPDS 5100 (with IPDS option on some models)
Multiple internal print server queues	No
String substitutions	No
String before/after job	No
DATASTREAMS	
S809 ASCII native	Yes
ASCII text and single byte escapes	Yes
IBM Proprinter III emulation	Yes (on some models)
IBM Personal Printer 2391 emulation	Yes (on some models)
IBM Proprinter III emulation	Yes (on some models)
IBM Personal Printer 2391 emulation	Yes (on some models)
Epson LQ series emulation	Yes (on some models)
Epson - FX emulation Yes (on some models)	
Epson LQ1600K with GB18030 character set emulation	Yes (with DBCS option on some models)
IPDS	Yes (with IPDS option on some models. See “Intelligent Printer Data Stream,” for application program compatibility considerations)
PRINTER SERVER FACILITIES SUPPORT	
PSF AIX	Yes
PSF OS400	Yes

Table 5. Network Interface Summary (cont.)

PSF MVS™	Yes
PSF VSE	Yes
PSF VM	Yes
NETWORK MANAGEMENT	
S809 Remote Printer Management Utility	Yes, download from www.Printronix.com
IBM NPM	Yes (generic printer)
HP JetAdmin	Yes (generic printer)
E-mail SMTP	Yes
Internal Web page	Yes
PRINTER STATUS AND ERROR REPORTING	
Ready	Yes
Not ready	Yes
Paper out	Yes
Paper jam	Yes
Cover open	Yes
Machine check (carriage fault, ribbon blocked...)	Yes
NETWORK CONFIGURATION PARAMETERS (see above)	
LINK LAYER	
Ethernet II	Yes
802.2	Yes
802.3	Yes
2/SNAP	Yes
Link disconnect (no data timeout)	15 second fixed setting
PROTOCOLS	
IP	Yes
TCP	Yes
UDP	Yes
ARP	Yes
RARP	Yes
SMP	Yes
Telnet	Yes
DHCP	Yes
DDNS	Yes
WINS	Yes
BOOTP	Yes
FTP	Yes
TFTP	Yes
ICMP	Yes
LPR/LPD	Yes
DHCP	Yes
SNMP	Yes
SMTP	Yes

Table 5. Network Interface Summary (cont.)

Direct Socket Printing	Yes
HTTP	Yes
PING	Yes
SNMP	Yes
MIB II (RFC 1514)	Yes (see note)
Host Resource MIB (RFC 1514)	Yes
Printer MIB (RFC1759)	Yes
S809 Private MIB	Yes
Reverse Telnet	No
PROS	No
IPP	No
SLPv2	No
HARDWARE	
RISC processor	Yes
Flash memory	4MB
RAM	16MB
Attachment connector type	RJ-45
Network traffic led	Yes (green)
Network speed led	Yes (yellow)
FIRMWARE UPGRADE	
Firmware upgrade over network	Yes
Firmware upgrade through parallel interface	Yes

Note: All relevant parts of MIB-II (RFC1231) required to support HP JetAdmin are implemented.

- The following IP table group OIDs are not implemented: ipForwarding, ipDefaultTTL , ipInReceives ,ipInHdrErrors,ipInAddrErrors, ipForwDatagrams, ipInUnknownProtos, ipInDiscards, ipInDelivers, ipOutRequests, ipOutDiscards, ipOutNoRoutes, ipReasmTimeout ,ipReasmReqds, ipReasmOKs,ipReasmFails,ipFragOKs, ipFragFails, ipFragCreates
- The ipRouteTable OIDs are not implemented.
- The ipNetToMediaTable OIDs are not implemented.
- The icmp group OIDs are not implemented.
- The tcp group OIDs are not implemented.
- The udp group OIDs are not implemented.
- The snmp group OIDs are not implemented.

Appendix D. LAN Interface MIB Support

Table 6 List of the MIB of the printer.

Description	MIB
prtButton	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 1
prtBaseCodeVersion	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 2
prtHtmlContact	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 3
prtRebootPrinter	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 4
prtRestoreToMfg	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 5
prtGetPrinterStatus	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 6
prtMenuLocked	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 7
prtPowerOnCycles	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 8
prtPowerOnMinutes	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 9
prtBarCodes	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 10
prtPageWithGraphics	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 11
prtHSDraftCharacters	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 12
prtDPCharacters	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 13
prtDPTextCharacters	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 14
prtNLQCharacters	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 15
prtBESTDraftCharacters	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 16
prtLQCharacters	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 17
prtPrintedPageNumber	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 18
prtLPD_Timeout	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 19
LPD_Reboot	1, 3, 6, 1, 4, 1, 6345, 1, 2, 1, 20
prtMenuUserMacro	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2
prtMenuUserMacroTable	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1
prtUserMacroEntry	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1
prtUserMacroIndex	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 1
prtUserMacroLineSpace	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 2
prtUserMacroLineSpaceLock	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 3
prtUserMacroLength	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 4
prtUserMacroTopOfForm	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 5
prtUserMacroSkiPover	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 6
prtUserMacroDraftMode	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 7
prtUserMacroFont	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 8
prtUserMacroPitch	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 9
prtUserMacroPitchLock	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 10
prtUserMacroLeftMargin	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 11
prtUserMacroRightMargin	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 12
prtUserMacroSlashZero	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 13
prtUserMacroPath	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 14
prtUserMacroTear	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 15
prtUserMacroImpact	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 16
prtUserMacroPerforSave	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 17
prtUserMacroGap	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 18
prtUserMacroTuningHor	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 19
prtUserMacroTuningVer	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 20
prtUserMacroIgnoreFF	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 21
prtUserMacroQuality	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 22
prtUserMacro1524Cpi	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 23

Table 6 List of the MIB of the printer.

Description	MIB
prtUserMacroTearDelay	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 24
prtUserMacroQuiet	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 25
prtUserMacroDBCS	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 26
prtUserMacroDBCS_Cpi	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 27
prtUserMacroDBCS_Lpi	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 28
prtUserMacroTH_Space	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 29
/* IPDS SETTINGS START */	
prtUserMacroI_Pitch	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 30
prtUserMacroI_LineSpace	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 31
prtUserMacroI_RightMargin	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 32
prtUserMacroI_FormLength	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 33
prtUserMacroI_Font	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 34
prtUserMacroI_NLQ_Font	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 35
prtUserMacroI_HostFastDraft	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 36
prtUserMacroI_Nation	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 37
prtUserMacroI_Emulation	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 38
prtUserMacroI_MediaSizePriority	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 39
prtUserMacroI_BcMode	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 40
prtUserMacroI_GraMode	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 41
prtUserMacroFontLock	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 2, 1, 1, 42
/* IPDS SETTINGS END */	
prtMenuConfig	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3
prtMenuConfigTable	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1
prtMenuConfigEntry	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1
prtMenuConfigMacroWork	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 1
prtMenuConfigIfType	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 2
prtMenuConfigEmulation	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 3
prtMenuConfigCharset	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 4
prtMenuConfigNation	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 5
prtMenuConfigAutoCR	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 6
prtMenuConfigAutoLF	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 7
prtMenuConfigIBM20CPI	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 8
prtMenuConfigBarcode	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 9
/* ANSI SETTINGS START */	
prtMenuConfigA_CharSet	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 10
prtMenuConfigA_CharTable	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 11
prtMenuConfigA_Nation	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 12
prtMenuConfigA_RIS_Enable	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 13
prtMenuConfigA_SI_SO_Control	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 14
prtMenuConfigA_AutoCR	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 15
prtMenuConfigA_PrimeOnDEL	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 16
prtMenuConfigA_ControlInDg	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 17
prtMenuConfigA_ExpandUp	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 18
prtMenuConfigA_AltGraph	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 19
prtMenuConfigA_8BitControl	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 20
prtMenuConfigA_ENQ_Code	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 21
prtMenuConfigA_SubSuperScript	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 22
prtMenuConfigA_ControlInESC	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 23
prtMenuConfigA_VT_NotSet	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 24

Table 6 List of the MIB of the printer.

Description	MIB
prtMenuConfigA_DoubleLF	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 25
prtMenuConfigA_AutoWrap	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 26
prtMenuConfigA_ClearMargin	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 27
prtMenuConfigA_Backup	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 28
prtMenuConfigA_GuardBar	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 29
/* ANSI SETTINGS END */	
prtMenuConfigParType	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 30
prtMenuConfigParSelectIn	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 31
prtMenuConfigParDataBits	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 32
prtMenuConfigParDedicBuffer	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 33
prtMenuConfigSerType	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 34
prtMenuConfigSerBaudRate	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 35
prtMenuConfigSerDataBits	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 36
prtMenuConfigSerParity	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 37
prtMenuConfigSerProtocol	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 38
prtMenuConfigSerLocRem	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 39
prtMenuConfigSerDedicBuffer	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 40
prtMenuConfigBuzzer	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 45
prtMenuConfigSequence	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 46
prtMenuConfigRibbon	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 47
prtMenuConfigBarCodeDpi	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 48
prtMenuConfigTextDirect	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 49
prtMenuConfigGraphDirect	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 50
prtMenuConfigBarCodeDirect	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 51
prtMenuConfigGraphHighSpeed	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 52
prtMenuConfigPowerOnPath	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 53
prtMenuConfigMenuLanguage	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 54
prtMenuConfigLowerJamSensor	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 55
prtMenuConfigUpperJamSensor	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 56
prtMenuConfigTearAdjust	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 57
prtMenuConfigQuick	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 58
prtMenuConfigOverlay	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 59
prtMenuConfigA_AutoLF	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 60
prtMenuConfigD_G0_CharSet	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 61
prtMenuConfigD_UP_CharSet	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 62
prtMenuConfigD_AutoCR	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 63
prtMenuConfigD_AutoLF	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 64
prtMenuConfigD_AutoWrap	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 65
prtMenuConfigCondensed	1, 3, 6, 1, 4, 1, 6345, 1, 2, 3, 3, 1, 1, 66
printserver	1, 3, 6, 1, 4, 1, 6345, 1, 1
csystem	1, 3, 6, 1, 4, 1, 6345, 1, 1, 1
csystemVersion	1, 3, 6, 1, 4, 1, 6345, 1, 1, 1, 1
cinetd	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2
cinetdnum	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 1
cinetdNumber	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 1, 1
cinetdlpd	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2
cinetdDescr1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 1
cinetdType1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 2

Table 6 List of the MIB of the printer.

Description	MIB
cinetdUdp1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 3
cinetdWait1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 4
cinetdInstance1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 5
cinetdUserID1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 6
cinetdProgram1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 7
cinetdProgram11	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 2, 8
cinetdftp	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3
cinetdDescr2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 1
cinetdType2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 2
cinetdUdp2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 3
cinetdWait2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 4
cinetdInstance2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 5
cinetdUserID2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 6
cinetdProgram2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 7
cinetdProgram12	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 3, 8
cinetdtelnet	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4
cinetdDescr3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 1
cinetdType3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 2
cinetdUdp3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 3
cinetdWait3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 4
cinetdInstance3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 5
cinetdUserID3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 6
cinetdProgram3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 7
cinetdProgram13	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 4, 8
cinetddipd	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5
cinetdDescr4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 1
cinetdType4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 2
cinetdUdp4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 3
cinetdWait4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 4
cinetdInstance4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 5
cinetdUserID4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 6
cinetdProgram4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 7
cinetdProgram14	1, 3, 6, 1, 4, 1, 6345, 1, 1, 2, 5, 8
cservices	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3
cservnum	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 1
cservNumber	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 1, 1
cservftp	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 2
cservDescr1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 2, 1
cservPort1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 2, 2
cservType1	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 2, 3
cservtelnet	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 3
cservDescr2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 3, 1
cservPort2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 3, 2
cservType2	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 3, 3
cservlpd	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 4
cservDescr3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 4, 1
cservPort3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 4, 2
cservType3	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 4, 3

Table 6 List of the MIB of the printer.

Description	MIB
cservdipd	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 5
cservDescr4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 5, 1
cservPort4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 5, 2
cservType4	1, 3, 6, 1, 4, 1, 6345, 1, 1, 3, 5, 3
cqueue	1, 3, 6, 1, 4, 1, 6345, 1, 1, 4
cinit	1, 3, 6, 1, 4, 1, 6345, 1, 1, 5
cintAddr	1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 1
cdefRout	1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 3
cnetMask	1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 2
cinitHost	1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 4
cinitWorkg	1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 5
cinitDescr	1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 6
cinitBoot	1, 3, 6, 1, 4, 1, 6345, 1, 1, 5, 7
cprinter	1, 3, 6, 1, 4, 1, 6345, 1, 1, 6
cconfig	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7
csnmpd	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 1
csnmpdEnb	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 1, 1
csnmpdReadCommunity	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 1, 2
csnmpdSetCommunity	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 1, 3
csnmpdSetCommunityCrypt	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 1, 4
chttpd	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 2
chttpdEnb	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 2, 1
csamba	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 3
csambaEnb	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 3, 1
cnovell	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 4
cnovellEnb	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 4, 1
cnovellFrmType	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 4, 2
cnovellNwServer	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 4, 3
cnovellPrtName	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 4, 4
cnovellQueueName	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 4, 5
csmtp	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 5
csmtpEnb	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 5, 1
csmtpEmailAddr	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 5, 2
csmtpSMTPAddr	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 5, 3
csmtpTrap	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 5, 4
csmtpEmailMittAddr	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 5, 6
csecurity	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 6
csecUser	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 6, 1
csecPwd	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 6, 2
csecPwdCrypt	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 6, 3
cipds	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 7
cipdsEnb	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 7, 1
cipdsPort	1, 3, 6, 1, 4, 1, 6345, 1, 1, 7, 7, 2

Appendix E. The Remote Printer Management Utility

The Remote Printer Management Utility (RPMU) is a software tool for network administrators that allows the configuration and control of Printronix Company printers remotely connected to the Ethernet LAN.

With this tool the installed printers may be controlled, configured and organized easily.

The main features are:

Device Discovery	Searches for the devices within a range of IP addresses.
Printer Organization	The printers connected to the network can be organized into logical groups in a hierarchically structured tree.
Printer Status	Report Checks the printer's status and reports alarms.
Printer Configuration	The remotely connected printers may be configured as needed from the administrator's workstation.
Firmware Updating	Provides a firmware downloading function to upgrade both the base and the LAN card firmware.
Remote Operator Panel	Provides a virtual operator panel for the remotely connected
Management	printer at the administrator's workstation that allows to perform all functions normally achieved pressing the operator panel keys.

The Remote Printer Management Utility also provides the basic status management for third-party printers compliant to the standard MIB objects.

Operating System Compatibility
The Remote Printer Management Utility is a Java™ based application and can be run on any platform supporting the Java Run Time Environment version 1.6 or newer.

Software Installation and Documentation
The Remote Printer Management Utility software and Administrator's Guide can be downloaded from our website at : www.printronix.com

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Appendix F. Print Driver Support

Microsoft Windows drivers, IBM pSeries AIX color files, and IBM System i workstation customization objects can be downloaded from our website: www.Printronix.com

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Appendix G. S809 Bar Code and OCR Printing Options

This appendix contains information about the options that are available for printing bar codes and Optical Character Recognition (OCR) characters. The bar code charts detail the element (bar/space) width options, the wide-to-narrow element ratios, the magnification percentages, and the characters printed per inch plus whether the bar codes can be printed in low-contrast or high-contrast modes. Low-contrast mode

provides the best throughput, while high-contrast mode results in the best bar code printing quality.
The OCR section contains the Optical Character Recognition symbol subsets that can be printed.

Bar Code Printing Options Charts

Keep the following statements in mind when printing bar codes.

● All bar codes printed by the S809 Printer can print in high-contrast mode. Not all of them, however, can print in low-contrast mode. If you specify low-contrast mode for a bar code that is not supported in that mode, the printer will not return an error but will default to high-contrast mode instead.

● Vertically-rotated bar codes may not consistently meet bar/space width specifications. Users should test for application suitability.

● Bar codes printed in low-contrast mode may not consistently meet specifications. Users should test for application suitability.

Table 7. Bar Code Printing Options for Non-UPC Family Bar Codes

Bar Code Type	Narrow Element Width Options (mils)	Wide-to-Narrow Element Ratio	Low-Contrast Mode - Horzontal	Low-Contrast Mode - Vertical	Bar Code Char. Per Inch (CPI)
Code 3 of 9	13.9	2:1	Yes	Yes	5.54
	13.9	2.5:1	Yes	Yes	4.97
	13.9	3:1	Yes	Yes	4.5
	16.7	2:1	Yes	No	6.65
	16.7	2.5:1	Yes	No	5.95
	16.7	3:1	Yes	No	5.4
	20.8	2:1	Yes	Yes	3.69
	20.8	2.5:1	Yes	Yes	3.2
	20.8	3:1	Yes	Yes	3.0
	27.8	2:1	Yes	Yes	2.77
	27.8	2.5:1	Yes	Yes	2.48
	27.8	3:1	Yes	Yes	2.25
Interleaved 2 of 5	13.9	2:1	Yes	Yes	10.29
	13.9	2.5:1	Yes	Yes	9.0
	13.9	3:1	Yes	Yes	8.0
	16.7	2:1	Yes	No	12.35
	16.7	2.5:1	Yes	No	10.8
	16.7	3:1	Yes	No	9.6
	20.8	2:1	Yes	Yes	6.86
	20.8	2.5:1	Yes	Yes	5.76
	20.8	3:1	Yes	Yes	5.33
	27.8	2:1	Yes	Yes	5.14
	27.8	2.5:1	Yes	Yes	4.5
	27.8	3:1	Yes	Yes	4.0

Table 7. Bar Code Printing Options for Non-UPC Family Bar Codes (continued)

Bar Code Type	Narrow Element Width Options (mils)	Wide-to-Narrow Element Ratio	Low-Contrast Mode - Horzontal	Low-Contrast Mode - Vertical	Bar Code Char. Per Inch (CPI)
Industrial 2 of 5	13.9	2:1	Yes	Yes	6.0
	13.9	2.5:1	Yes	Yes	5.54
	13.9	3:1	Yes	Yes	5.14
	16.7	2:1	Yes	No	7.2
	16.7	2.5:1	Yes	No	6.65
	16.7	3:1	Yes	No	6.17
	20.8	2:1	Yes	Yes	4.0
	20.8	2.5:1	Yes	Yes	3.6
	20.8	3:1	Yes	Yes	3.43
	27.8	2:1	Yes	Yes	3.0
	27.8	2.5:1	Yes	Yes	2.77
	27.8	3:1	Yes	Yes	2.57
Matrix 2 of 5	13.9	2:1	Yes	Yes	9.0
	13.9	2.5:1	Yes	Yes	8.0
	13.9	3:1	Yes	Yes	7.2
	16.7	2:1	Yes	No	10.8
	16.7	2.5:1	Yes	No	9.6
	16.7	3:1	Yes	No	8.64
	20.8	2:1	Yes	Yes	6.0
	20.8	2.5:1	Yes	Yes	5.14
	20.8	3:1	Yes	Yes	4.8
	27.8	2:1	Yes	Yes	4.5
	27.8	2.5:1	Yes	Yes	4.0
	27.8	3:1	Yes	Yes	3.6
MSI	13.9	2:1	Yes	Yes	6.0
	13.9	2.5:1	Yes	Yes	5.14
	13.9	3:1	Yes	Yes	4.5
	16.7	2:1	Yes	No	7.6
	16.7	2.5:1	Yes	No	6.17
	16.7	3:1	Yes	No	5.4
	20.8	2:1	Yes	Yes	4.0
	20.8	2.5:1	Yes	Yes	3.27
	20.8	3:1	Yes	Yes	3.0
	27.8	2:1	Yes	Yes	3.0
	27.8	2.5:1	Yes	Yes	2.57
	27.8	3:1	Yes	Yes	2.25
Codabar	13.9	2:1	Yes	Yes	6.55 - 7.2
	13.9	2.5:1	Yes	Yes	5.76 - 6.55
	13.9	3:1	Yes	Yes	5.14 - 6.0
	16.7	2:1	Yes	No	7.86 - 8.64
	16.7	2.5:1	Yes	No	6.91 - 7.86
	16.7	3:1	Yes	No	6.17 - 7.2
	20.8	2:1	Yes	Yes	4.36 - 4.8
	20.8	2.5:1	Yes	Yes	4.00 - 4.5
	20.8	3:1	Yes	Yes	3.43 - 4.0
	27.8	2:1	Yes	Yes	3.27 - 3.6
	27.8	2.5:1	Yes	Yes	2.88 - 3.27
	27.8	3:1	Yes	Yes	2.57 - 3.0
Code 128	13.9	N/A	Yes	Yes	6.55
	16.7	N/A	Yes	No	7.86
	20.8	N/A	Yes	Yes	4.36
	27.8	N/A	Yes	Yes	3.27 (See Note)

Table 7. Bar Code Printing Options for Non-UPC Family Bar Codes (continued)

Bar Code Type	Narrow Element Width Options (mils)	Wide-to-Narrow Element Ratio	Low-Contrast Mode - Horzontal	Low-Contrast Mode - Vertical	Bar Code Char. Per Inch (CPI)
POSTNET	21.2	N/A	Yes	Yes	4.3
Note: The CPI shown for Code 128 is for code sets A or B. The CPI for code set C is approximately double the values shown.					

Table 8. Bar Code Printing Options for UPC Family Bar Codes

Bar Code Type	Narrow Element Width Options (mils)	Wide-to-Narrow Element Ratio	Low-Contrast Mode - Horzontal	Low-Contrast Mode - Vertical	Bar Code Char. Per Inch (CPI)
UPC A	13.9 16.7	1.07 1.07	Yes Yes	Yes No	10.29 12.35
UPC E	13.9 16.7	1.07 1.07	Yes Yes	Yes No	10.29 12.35
UPC/EAN-2	13.9 16.7	1.07 1.07	Yes Yes	Yes No	10.29 12.35
UPC/EAN-5	13.9 16.7	1.07 1.07	Yes Yes	Yes No	10.29 12.35
EAN 8	13.9 16.7	1.07 1.07	Yes Yes	Yes No	10.29 12.35
EAN-13	13.9 16.7	1.07 1.07	Yes Yes	Yes No	10.29 12.35

Optical Character Recognition (OCR) Printing

OCR Symbols

The S809 prints a comprehensive set of OCR-A and OCR-B characters derived from standards developed by the International Standards Organization (ISO) and the American National Standards Institute (ANSI). All OCR character shapes produced by the S809 Printer are not identical with the shapes defined in these standards. Users should test OCR printing with their scanning equipment to verify satisfactory performance.

OCR Scanning

Printronix Company has tested the following OCR symbol subsets for readability:

Table 9. OCR Symbol Subsets

OCR-A NRMA	OCR-A Data Entry	OCR-A Eurobanking	OCR-A Money Transfer	OCR-B ECMA	OCR-B Money Transfer
0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
A	A	C	hook	C	>
B	B	P	fork	E	+
C	C	R	chair	N	<
D	D	U		S	
M	M	X		T	
N	N	Z		V	
P	P	/		X	
R	R	+		Z	
U	U	#		>	
X	X	hook		<	
Y	Y	fork		+	
>	>	chair			
/	/				
"	+				

Appendix H. Configuration Menu Lockout

Configuration Menu Lockout should be used by the application programmer or printer operator to lock the Configuration Menu when you want to prevent a casual operator from changing parameter values that have been set for print jobs.

To set Configuration Menu Lockout:

1. Press ON LINES if the READY indicator is on. The printer goes to the NOT READY state.
2. In the NOT READY state, press and hold ALTERNATE + MACRO + ONLINE keys in the same time. The printer displays MENU LOCKED.
3. To unlock the Configuration Menu repeat the step 1 and 2. The printer display MENU UNLOCKED. Press STOP

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Appendix I Addendum (Bar Codes)

The following chapter integrates the Bar Code information already present in this manual adding the Intelligent Mail Barcode explanation with examples in different emulations.
Furthermore it describes some features in specific Emulation Commands present in the firmware but not described in the previous chapters.

Bar Code Mode

The S809 printer has three different Bar Code Modes selectable in the Power-on Configuration Setup.

1) **Native** selection enables bar code printing using :
   - The Native commands as indicated in chapter 2 and also in this chapter as examples
   - MTPL commands as indicated later on in this chapter.
2) **Alt.1** selection enables bar code printing using :
   - EPSON or IBM commands as indicated in chapter 1.
3) **Alt.2** selection enables bar code printing using:
   - SEIKOSHA commands as indicated later on in this chapter.

The S809 can print Bar Code using also :
- ANSI commands as indicated in chapter 3 (see example in this chapter)

USPS Intelligent Mail Bar Code 4-state

The S809 can print the USPS Intelligent Mail Bar Code 4-state in different emulations.
The 4-statebarcode data must contains only ASCII numeric (from 0 to 9) and must be converted into only 0, 1, 2 or 3. Each number represents one of the four possible bars.

The Intelligent Mail barcode is a 65-bar Postal Service™ barcode used to sort and track letters and flats. It allows mailers to use a single barcode to participate in multiple Postal Service programs simultaneously, expands mailers' ability to track individual mail pieces, and provides greater mail stream visibility.
The Intelligent Mail barcode consists of a 20-digit tracking code (Barcode Identifier, Service Type Identifier, Mailer Identifier, and Serial Number) and a Routing Code (ZIP Code™) field of up to 11 digits.
An encoder converts the digits into a 65-character string representing the bars of the IMb® tracking code,

EXAMPLE:
Service Type ID of 270 (First-Class Mail®, Intelligent Mail Full-Service option, with IMb Tracing® service, no address correction), Mailer ID 123456, uniquely identified by Serial Number 200800001, going to ZIP Code 98765-4321(01), is encoded like this:

Digit String:
00270123456200800001198765432101

Intelligent Mail barcode encoder > Encoded string (T=Tracker, F=Full Bar, A=Ascender, D=Descender):

TTFAFDADTFFFADTAFAFTTDATDFAAFTDAFDFDFDATFDFTDDDDFADFFDADDTDDTTDAT

More information on website: https://postalpro.usps.com/mailing/intelligent-mail-barcode

Intelligent Mail Bar Code 4-state with Native Commands Mode (Native Bar Code Mode)

DC4 DC4 ESC ! h “ f EM

UPPS Bar Code Selection.

ASCII Code	DC4 DC4 ESC ! h “ f F r EM
Hexadecimal Value	X'14' X'14' X'1B' X'21' h X’22’ f F r X’19’
Decimal Value	20 20 27 33 h 34 f F r 25

h = Bar Code Height at n/6”, 1 < h < 30

f = Readable character printing

- f = 0 printing disabled
- f = 1 printing enabled, characters below barcode, justified position
- f = 21 printing enabled, characters above barcode, justified position
- f = 81 printing enabled, characters below barcode, middle position
- f = A1 printing enabled, characters above barcode, middle position

F = Font selection for the printable characters

- 0 Selected font by r value
- 1 Default font for text
- 1 Special font for OCR-A o OCR-B bar codes according to the t value
- 3 Special font for OCR-A bar codes
- 4 Special font for OCR-B bar codes

r = Bar code rotation

r	Selection
0	No rotation
1	Rotation at 0°
2	Rotation at 90°
3	Rotation at 180°
4	Rotation at 270°

EM = Check sequence terminator

Intelligent Mail Bar Code 4-state with Epson/IBM Emulations Commands (Alt. 1 Bar Code Mode)

See chapter 1, pages 54, 55 for details of these commands.
Remark: these commands are not handled in DEC emulations.

ESC [v n m

Sets Barcode parameters. (IBM -Epson)

ASCII Code	ESC [vnm
Hexadecimal Value	X'1B' X'5B' X'76' nm
Decimal Value	27 91 118 nm

Set barcode parameters according to the table below. Parameter values that are not supported result in the command being ignored.

n	Parameter Description	m values
0	Barcode style IMB 4-state	X ‘22’, 34 dec
2	Human readable line	0=disable
		1, 21 =enable below barcode
		81, A1 =enable above barcode
8	Rotation and HRC font	0.1=no rotation and current font for HRC
		2=90 3=180 4=270 and special HRC font
11	HRC font for rotate barcode	3=OCRA 4=OCRB

Intelligent Mail Bar Code 4-state with MTPL Commands (Native Bar Code Mode)

ESC [9 SP k CR

Sets bar code parameters (BC).

ASCII Code	ESC [9 SP k CR
Hexadecimal Value	X'1B' X'5B' X’39’ X'20' X’6B’ X’0D’
Decimal Value	27 91 57 32 109 13

In next pages a specific sub-chapter describes the MTPL (Mannesmann-Tally Printer Language) commands which can be handled by S809 printer.

Intelligent Mail Bar Code 4-state with ANSI Emulation Commands

See chapter 3, pages 86 and 87 for details of these commands.

ESC [p1; ; ; pn }

Sets bar code parameters (BC).

ASCII Code	ESC [p1; pn }
Hexadecimal Value	X'1B' X'5B' p1 X'3B' pn X'7D'
Decimal Value	27 91 p1 59 pn 125

This command allows selection of the bar code characteristics such as style height, symbol rotation and so on. The command ESC [3 t enables the bar code mode while ESC [0 t disables the mode.

p1: **Bar code style**

p1	**FUNCTION**	
	X ’33 34’, dec 48 49	IMB 4-state

p3: **Human Readable Input (HRI)**

p3	**FUNCTION**
0	Disables printing of the HRI
1	Enables printing of the HRI

p9: **Rotation**

p9	**FUNCTION**
0	0 degrees using current font
1	0 degrees using special HRI font
2	90 degrees using special HRI font
3	180 degrees using special HRI font
4	270 degrees using special HRI font

USPS Intelligent Mail Bar Code 4-state Examples

The following are samples for USPS Intelligent Mail Bar Code 4-state printed with the S809 Printer with related hex commands:

ASCII: Dc4Dc4Esc!03"00Em Dc4Dc4Esc("data" Em
Hex : 14141b2103220019 14141b28 "data" 19

00 270 123456 200800001 98765 4321 01

ASCII: Dc4Dc4Esc!03"010401Em Dc4Dc4Esc("data" Em
Hex : 14141b21032201040119 14141b28 "data" 19

00 270 123456 200800001 98765 4321 01

ASCII: Dc4Dc4Esc!03"010401Em Dc4Dc4Esc("data" Em
Hex: 14141b21032201040119 14141b28 "data" 19

Figure 71. Intelligent Mail Bar Code in Native Commands Example (Bar Code Mode Native)

ASCII: Esc[v00" Esc[01FF Esc[v0200 Esc[v0801 Esc[v1104 Esc[u01 "data" Esc[u00
Hex : 1B5B760022 1B5B7601FF 1B5B760200 1B5B760801 1B5B761104 1B5B7501 "data" 1B5B7500

00 270 123456 200800001 98765 4321 01

ASCII: Esc[v00" Esc[01FF Esc[v0200 Esc[v0801 Esc[v1104 Esc[u01 "data" Esc[u00
Hex : 1B5B760022 1B5B7601FF 1B5B760201 1B5B760801 1B5B761104 1B5B7501 "data" 1B5B7500

00 270 123456 200800001 98765 4321 01

ASCII: Esc[v00" Esc[01FF Esc[v0200 Esc[v0801 Esc[v1104 Esc[u01 "data" Esc[u00
Hex : 1B5B760022 1B5B7601FF 1B5B760221 1B5B760801 1B5B761104 1B5B7501 "data" 1B5B7500

Figure 72. Intelligent Mail Bar Code in Epson/IBM Commands Example (Bar Code Mode Alt. 1)

```
Print Intelligent Mail Barcode with MTPL Commands
(Barcode Mode Native)

ASCII: Esc[?11~Esc[9Spk "data" Cr
Hex  : 1B5B3F31317E 1B5B39206B "data" 0D Esc[?10
```

Figure 73. Intelligent Mail Bar Code in ANSI Commands Example

```
ASCII: Esc[34;;0;;;;;;1;1;}
HEX  : 1B5B33343B3B303B3B3B3B3B3B313B313B7D

00 270 123456 200800001 98765 4321 01

ASCII: Esc[34;;1;;;;;;1;1;}
HEX  : 1B5B33343B3B313B3B3B3B3B3B313B313B7D
```

Figure 74. Intelligent Mail Bar Code in MTPL Commands Example (Bar Code Mode Alt. 1)

Bar Codes handled in NATIVE Commands (Native Bar Code Mode)

The S809 integrates in the firmware the handling of the Bar Codes with the NATIVE commands.

The complete and detailed information for these commands can be found on chapter 2 of this Programmer Manual. Here are reported some examples how these commands work.

Figure 75. Bar Code Examples with NATIVE Commands Example (Bar Code Mode Native)

```
0000  14 14 1B 40 0D 0A 50 52 49 4E 54 20 42 41 52 20   ¶¶←@♪◙PRINT BAR
0001  43 4F 44 45 20 33 39 20 69 6E 20 64 69 66 66 65   CODE 39 in diffe
0002  72 65 6E 74 20 66 6F 72 6D 61 74 73 20 61 6E 64   rent formats and
0003  20 73 69 7A 65 73 20 77 69 74 68 20 4E 41 54 49    sizes with NATI
0004  56 45 20 43 4F 4D 4D 41 4E 44 53 0A 0D 0A 0D 0A   VE COMMANDS◙♪◙♪◙
0005  52 6F 74 61 74 69 6F 6E 0D 0A 0A 0A 14 14 1B 21   Rotation♪◙◙◙¶¶←!
0006  03 14 01 00 01 19 14 14 1B 28 2A 31 32 33 2A 19   ♥¶☺ ☺↓¶¶←(*123*↓
0007  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
0008  20 20 20 14 14 1B 21 03 14 01 00 03 19 14 14 1B      ¶¶←!♥¶☺ ♥↓¶¶←
0009  28 2A 31 32 33 2A 19 0D 0A 0A 0A 0A 0A 0A 0A 0A   (*123*↓♪◙◙◙◙◙◙◙◙
000A  0A 1B 6A 7B 20 20 20 20 20 20 20 20 20 20 20 20   ◙←j{
000B  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
000C  20 20 20 20 20 20 20 20 20 20 20 20 14 14 1B 21                ¶¶←!
000D  03 14 01 00 02 19 14 14 1B 28 2A 31 32 33 2A 19   ♥¶☺ ☻↓¶¶←(*123*↓
000E  0D 0A 1B 6A FF 20 20 20 20 20 20 20 20 20 20 20   ♪◙←j
000F  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20

0010  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
0011  20 20 20 20 20 20 20 20 20 20 20 20 20 20 14 14                ¶¶
0012  1B 21 03 14 01 00 04 19 14 14 1B 28 2A 31 32 33   ←!♥¶☺ ♦↓¶¶←(*123
0013  2A 19 0D 0A 0A 0A 0A 0A 0A 0A 0A 0A 48 65 69 67   *↓♪◙◙◙◙◙◙◙◙◙◙Heig
0014  68 74 0D 0A 14 14 1B 21 01 14 01 00 01 19 14 14   ht♪◙¶¶←!☺¶☺ ☺↓¶¶
0015  1B 28 2A 31 32 33 2A 19 0D 20 20 20 20 20 20 20   ←(*123*↓♪
0016  20 20 20 20 20 20 20 20 20 20 20 20 14 14 1B 21 02             ¶¶←!☻
0017  14 01 00 01 19 14 14 1B 28 2A 31 32 33 2A 19 0D   ¶☺ ☺↓¶¶←(*123*↓♪
0018  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
0019  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
001A  20 20 20 20 1B 6A 20 14 14 1B 21 03 14 01 00 01       ←j ¶¶←!♥¶☺ ☺
001B  19 14 14 1B 28 2A 31 32 33 2A 19 0D 20 20 20 20   ↓¶¶←(*123*↓♪
001C  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
001D  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
001E  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
001F  20 20 1B 6A 3C 14 14 1B 21 04 14 01 00 01 19 14     ←j<¶¶←!♦¶☺ ☺↓¶

0020  14 1B 28 2A 31 32 33 2A 19 0D 20 20 20 20 20 20   ¶←(*123*↓♪
0021  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
0022  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
0023  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
0024  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
0025  20 20 1B 6A 58 14 14 1B 21 05 14 01 00 01 19 14     ←jX¶¶←!♠¶☺ ☺↓¶
0026  14 1B 28 2A 31 32 33 2A 19 0D 0D 0A 0D 48 52 43   ¶←(*123*↓♪♪◙♪HRC
0027  20 4E 6F 0D 0A 14 14 1B 21 03 14 00 01 01 00 00    No♪◙¶¶←!♥¶ ☺☺
0028  19 14 14 1B 28 1D 21 2A 31 32 33 2A 19 0D 0A 0A   ↓¶¶←(↔!*123*↓♪◙◙
0029  73 70 61 63 69 6E 67 3D 64 65 66 2E 0D 0A 14 14   spacing=def.♪◙¶¶
002A  1B 21 03 14 01 01 01 00 00 19 14 14 1B 28 1D 21   ←!♥¶☺☺☺  ↓¶¶←(↔!
002B  2A 31 32 33 2A 19 0D 0A 0A 73 70 61 63 69 6E 67   *123*↓♪◙◙spacing
002C  3D 33 78 36 0D 0A 14 14 1B 21 03 14 01 01 01 00   =3x6♪◙¶¶←!♥¶☺☺☺
002D  00 03 03 06 06 03 19 14 14 1B 28 1D 21 2A 31 32    ♥♥♠♠♥↓¶¶←(↔!*12
002E  33 2A 19 0A 0D 0A 73 70 61 63 69 6E 67 3D 34 78   3*↓◙♪◙spacing=4x
002F  31 32 0D 0A 14 14 1B 21 03 14 01 01 01 00 00 04   12♪◙¶¶←!♥¶☺☺☺  ♦

0030  04 09 09 03 19 14 14 1B 28 1D 21 2A 31 32 33 2A   ♦○○♥↓¶¶←(↔!*123*
0031  19 0A 0D 0A 73 70 61 63 69 6E 67 3D 35 78 31 30   ↓◙♪◙spacing=5x10
0032  0D 0A 14 14 1B 21 03 14 01 01 01 00 00 05 05 0A   ♪◙¶¶←!♥¶☺☺☺  ♠♠◙
0033  0A 03 19 14 14 1B 28 1D 21 2A 31 32 33 2A 19 0A   ◙♥↓¶¶←(↔!*123*↓◙
0034  0D 0A 73 70 61 63 69 6E 67 3D 36 78 31 31 0D 0A   ♪◙spacing=6x11♪◙
0035  14 14 1B 21 03 14 01 01 01 00 00 06 06 0B 0B 03   ¶¶←!♥¶☺☺☺  ♠♠♂♂♥
0036  19 14 14 1B 28 1D 21 2A 31 32 33 2A 19 0A 0D 0A   ↓¶¶←(↔!*123*↓◙♪◙
0037  73 70 61 63 69 6E 67 3D 37 78 31 34 0D 0A 14 14   spacing=7x14♪◙¶¶
0038  1B 21 03 14 01 01 01 00 00 07 07 0E 0E 03 19 14   ←!♥¶☺☺☺  ••♫♫♥↓¶
0039  14 1B 28 1D 21 2A 31 32 33 2A 19 0A 0D 0A 73 70   ¶←(↔!*123*↓◙♪◙sp
003A  61 63 69 6E 67 3D 38 78 31 35 0D 0A 14 14 1B 21   acing=8x15♪◙¶¶←!
003B  03 14 01 01 01 00 00 08 08 0F 0F 03 19 14 14 1B   ♥¶☺☺☺  ◘◘☼☼♥↓¶¶←
003C  28 1D 21 2A 31 32 33 2A 19 0A 0D 0A 73 70 61 63   (↔!*123*↓◙♪◙spac
003D  69 6E 67 3D 39 78 31 38 0D 0A 14 14 1B 21 03 14   ing=9x18♪◙¶¶←!♥¶
003E  01 01 01 00 00 09 09 12 12 03 19 14 14 1B 28 1D   ☺☺☺  ○○↕↕♥↓¶¶←(↔
003F  21 2A 31 32 33 2A 19 0A 0D 0A 73 70 61 63 69 6E   !*123*↓◙♪◙spacin

0040  67 3D 39 78 33 36 0D 0A 14 14 1B 21 03 14 01 01   g=9x36♪◙¶¶←!♥¶☺☺
0041  01 00 00 09 09 24 24 03 19 14 14 1B 28 1D 21 2A   ☺  ○○$$♥↓¶¶←(↔!*
0042  31 32 33 2A 19 0D 0A 0A 0A 0A 0A 0A 0A 0A 0A 0C   123*↓♪◙◙◙◙◙◙◙◙◙♀
```

Figure 76. Hex Dump of example on figure 75

BARCODE SAMPLES with NATIVE Commands

EAN-8

1234 5670

EAN-13

3 456789 012340

UPC-A

1 23456 78901

UPC-E

0 223394

2 di 5 Interleaved

1 2 3 4 5 6 7 8 9 0 1 2

2 of 5 Industrial

1 2 3 4 5 6 7 8 9 0 1 2

2 of 5 Matrix

1 2 3 4 5 6 7 8 9 0 1 2

Code 39

* A B C D E 1 2 3 4 5 6 7 8 9 0 *

CODABAR

123456789012

CODE - 128

Figure 77. Bar Code Examples with NATIVE Commands Example (Bar Code Mode Native)

CODE - 128

123456789012 452353542034

POSTNET

USPS INTELLIGENT MAIL BARCODE

12 345 678901 234567890 12345 6789 01

UPC-EAN 2

12

UPC-EAN 5

12345

2 of 5 (3BAR)

1 2 3 4 6 7 8 9 0 1 2 3 4 5

CODE 93

1 ▪ M 2 ▪ [3 ▪ Y A ▪] B ▪ @ 4 u 5

Code 11

▲123-456789▲

Code-GP

0 0 1 0 0 0 1 1 1 0

CODE BCD

1 2 3 4 5

Figure 78. Bar Code Examples with NATIVE Commands Example (Bar Code Mode Native)

Figure 79. Bar Code Examples with NATIVE Commands Example (Bar Code Mode Native)

```
0000  0D 0A 1B 78 01 42 41 52 43 4F 44 45 20 20 20 53   ♪◙←x☺BARCODE   S
0001  41 4D 50 4C 45 53 20 77 69 74 68 20 4E 41 54 49   AMPLES with NATI
0002  56 45 20 43 6F 6D 6D 61 6E 64 73 0D 0A 0A 0A 45   VE Commands♪◙◙◙E
0003  41 4E 2D 38 0D 0A 14 14 1B 21 03 01 01 00 01 19   AN-8♪◙¶¶←!♥☺☺ ☺↓
0004  14 14 1B 28 31 32 33 34 35 36 37 30 19 0D 0A 0A   ¶¶←(12345670↓♪◙◙
0005  0A 45 41 4E 2D 31 33 0D 0A 14 14 1B 21 03 02 01   ◙EAN-13♪◙¶¶←!♥☻☺
0006  19 0D 0A 14 14 1B 28 33 34 35 36 37 38 39 30 31   ↓♪◙¶¶←(345678901
0007  32 33 34 30 19 0D 0A 0A 0A 55 50 43 2D 41 0D 0A   2340↓♪◙◙◙UPC-A♪◙
0008  14 14 1B 21 03 03 01 19 0D 0A 20 14 14 1B 28 31   ¶¶←!♥♥☺↓♪◙ ¶¶←(1
0009  32 33 34 35 36 37 38 39 30 31 32 19 0D 0A 0A 0A   23456789012↓♪◙◙◙
000A  55 50 43 2D 45 0D 0A 14 14 1B 21 04 04 01 20 20   UPC-E♪◙¶¶←!♦♦☺ 
000B  01 20 19 14 14 1B 28 32 32 33 33 30 30 30 30 30   ☺ ↓¶¶←(223300000
000C  39 19 0D 0A 0A 0A 32 20 64 69 20 35 20 49 6E 74   9↓♪◙◙◙2 di 5 Int
000D  65 72 6C 65 61 76 65 64 0D 0A 14 14 1B 21 03 11   erleaved♪◙¶¶←!♥◄
000E  01 02 19 0D 0A 20 14 14 1B 28 31 32 33 34 35 36   ☺☻↓♪◙ ¶¶←(123456
000F  37 38 39 30 31 32 19 0D 0A 0A 0A 32 20 6F 66 20   789012↓♪◙◙◙2 of

0010  35 20 49 6E 64 75 73 74 72 69 61 6C 0D 0A 14 14   5 Industrial♪◙¶¶
0011  1B 21 03 12 01 19 0D 0A 14 14 1B 28 31 32 33 34   ←!♥↕☺↓♪◙¶¶←(1234
0012  35 36 37 38 39 30 31 32 19 0D 0A 0A 0A 32 20 6F   56789012↓♪◙◙◙2 o
0013  66 20 35 20 4D 61 74 72 69 78 0D 0A 14 14 1B 21   f 5 Matrix♪◙¶¶←!
0014  03 13 01 19 0D 0A 14 14 1B 28 31 32 33 34 35 36   ♥‼☺↓♪◙¶¶←(123456
0015  37 38 39 30 31 32 19 0D 0A 0A 0A 43 6F 64 65 20   789012↓♪◙◙◙Code 
0016  33 39 14 14 1B 4A 01 01 0D 0A 14 14 1B 21 03 14   39¶¶←J☺☺♪◙¶¶←!♥¶
0017  01 19 0D 0A 14 14 1B 28 2A 41 42 43 44 45 31 32   ☺↓♪◙¶¶←(*ABCDE12
0018  33 34 35 36 37 38 39 30 2A 19 0D 0A 0A 0A 43 4F   34567890*↓♪◙◙◙CO
0019  44 41 42 41 52 0D 0A 14 14 1B 21 03 16 02 19 0D   DABAR♪◙¶¶←!♥▬☻↓♪
001A  0A 14 14 1B 28 2A 31 32 33 34 35 36 37 38 39 30   ◙¶¶←(*1234567890
001B  31 32 2A 19 0D 0A 0A 0A 43 4F 44 45 20 2D 20 31   12*↓♪◙◙◙CODE - 1
001C  32 38 0D 0A 14 14 1B 21 03 17 01 19 0D 0A 20 14   28♪◙¶¶←!♥↨☺↓♪◙ ¶
001D  14 1B 28 31 32 33 34 35 36 37 38 39 30 31 32 9D   ¶←(123456789012¥
001E  46 34 35 32 33 35 33 35 34 32 30 33 34 99 0D 0A   F452353542034Ö♪◙
001F  0A 0A 50 4F 53 54 4E 45 54 0D 0A 14 14 1B 21 03   ◙◙POSTNET♪◙¶¶←!♥

0020  18 01 19 0D 0A 14 14 1B 28 31 32 33 34 35 36 37   ↑☺↓♪◙¶¶←(1234567
0021  38 39 30 19 0D 0A 0A 0A 55 53 50 53 20 49 4E 54   890↓♪◙◙◙USPS INT
0022  45 4C 4C 49 47 45 4E 54 20 4D 41 49 4C 20 42 41   ELLIGENT MAIL BA
0023  52 43 4F 44 45 0D 0A 14 14 1B 21 03 22 01 19 0D   RCODE♪◙¶¶←!♥"☺↓♪
0024  0A 14 14 1B 28 31 32 33 34 35 36 37 38 39 30 31   ◙¶¶←(12345678901
0025  32 33 34 35 36 37 38 39 30 31 32 33 34 35 36 37   2345678901234567
0026  38 39 30 31 19 0D 0A 0A 0A 55 50 43 2D 45 41 4E   8901↓♪◙◙◙UPC-EAN
0027  20 32 0D 0A 14 14 1B 21 03 05 01 20 20 01 20 19    2♪◙¶¶←!♥♣☺  ☺ ↓
0028  0D 0A 14 14 1B 28 31 32 19 0D 0A 0A 0A 55 50 43   ♪◙¶¶←(12↓♪◙◙◙UPC
0029  2D 45 41 4E 20 35 0D 0A 14 14 1B 21 03 06 01 20   -EAN 5♪◙¶¶←!♥♠☺ 
002A  20 01 20 19 0D 0A 14 14 1B 28 31 32 33 34 35 19    ☺ ↓♪◙¶¶←(12345↓
002B  0D 0A 0A 0A 32 20 6F 66 20 35 20 28 33 42 41 52   ♪◙◙◙2 of 5 (3BAR
002C  29 0D 0A 14 14 1B 21 03 0B 01 20 20 01 20 19 0D   )♪◙¶¶←!♥♂☺  ☺ ↓♪
002D  0A 14 14 1B 28 31 32 33 34 36 37 38 39 30 31 32   ◙¶¶←(12346789012
002E  33 34 35 19 0D 0A 0A 0A 20 43 4F 44 45 20 39 33   345↓♪◙◙◙ CODE 93
002F  0D 0A 14 14 1B 21 03 0F 01 19 0D 0A 14 14 1B 28   ♪◙¶¶←!♥☼☺↓♪◙¶¶←(

0030  31 0D 32 1B 33 19 20 41 1D 42 11 34 75 35 99 0D   1♪2←3↓ A↔B◄4u5Ö♪
0031  0A 0A 0A 43 6F 64 65 20 31 31 0D 0A 14 14 1B 21   ◙◙◙Code 11♪◙¶¶←!
0032  03 0E 01 19 0D 0A 14 14 1B 28 31 32 33 2D 34 35   ♥♫☺↓♪◙¶¶←(123-45
0033  36 37 38 39 19 0D 0A 0A 0A 43 6F 64 65 2D 47 50   6789↓♪◙◙◙Code-GP
0034  20 20 0D 0A 14 14 1B 21 03 10 01 20 20 01 20 19     ♪◙¶¶←!♥►☺  ☺ ↓
0035  0D 0A 14 14 1B 28 30 30 31 30 30 30 31 31 31 30   ♪◙¶¶←(0010001110
0036  19 0D 0A 0A 0A 43 4F 44 45 20 42 43 44 20 0D 0A   ↓♪◙◙◙CODE BCD ♪◙
0037  14 14 1B 21 03 12 01 20 20 01 20 19 0D 0A 14 14   ¶¶←!♥↕☺  ☺ ↓♪◙¶¶
0038  1B 28 31 32 33 34 35 19 0D 0A 0A 0A 4D 53 49 20   ←(12345↓♪◙◙◙MSI 
0039  20 20 20 20 20 20 20 20 20 0D 0A 14 14 1B 13 03                ♪◙¶¶←‼♥
003A  0B 01 20 20 01 20 19 0D 0A 14 14 1B 28 31 32 33   ♂☺  ☺ ↓♪◙¶¶←(123
003B  34 35 36 37 38 39 30 31 32 33 34 35 37 39 19 0D   456789012345 79↓♪
003C  0A 0A 0A 43 32 35 2D 42 49 44 0D 0A 14 14 1B 21   ◙◙◙C25-BID♪◙¶¶←!
003D  03 10 01 19 0D 0A 14 14 1B 28 31 32 33 34 35 36   ♥►☺↓♪◙¶¶←(123456
003E  37 38 39 19 0D 0A 0A 0A 43 6F 64 65 20 31 31 0D   789↓♪◙◙◙Code 11♪
003F  0A 14 14 1B 21 03 0E 01 19 0D 0A 14 14 1B 28 31   ◙¶¶←!♥♫☺↓♪◙¶¶←(1

0040  32 33 2D 34 35 36 37 38 39 19 0D 0A 1B 78 00 0C   23-456789↓♪◙←x ♀
```

Figure 80. Hex Dump of example on figures 77, 78, 79

Bar Codes handled in MTPL Commands (Native Bar Code Mode)

The S809 integrates in the firmware a sub-set handling of the MTPL emulation Bar Codes commands.

The complete and detailed information for these commands can be found on specific MTPL Programmer Manual available on web.

Bar Code Description

Before the data, which contain the Barcode information, are transmitted to the printer, the Barcode header must be sent. Otherwise the standard parameter values are used (see section "Header Format"). In the header, the printing parameters, the Barcode size and the Barcode Type are de-fined. This header only needs to be transferred once, unless settings are to be changed or the printer has been turned off.

Header Format *Format:* **SUB [F] a [n] [;xyz] [;p] EM**

[ ] Specification is optional
x, y unregarded at EAN/UPC-Barcode!
For Code 128 and EAN 128 (Type S+T) only the X parameter is valid. This is automatically used for the Y parameter. The Z parameter is not evaluated.

Meaning of the characters:

SUB (hex.1A, dec.26)	Start header
F	Print feature
	SP (hex. 20, dec. 32): HRI OFF, Normal Print, Double Pass, Unidirectional (def.)
	! (hex. 22, dec. 34): HRI ON, Normal Print, Double Pass, Unidirectional
a ASCII a = "A"..."S"	Barcode Types (def. “A”, see later on)
n ASCII n = "0"..."90"	Barcode height in n/6 inch. At n="0" the Barcode height equals to 1/12 inch. (def. 1)
; ASCII	Separation character
x ASCII x = "0"..."3"	Width of the narrow bar (def.0)
y ASCII y = "0"..."3"	Width of the narrow space (def.0)
z ASCII z = "0"..."3"	Ratio of wide to narrow (def.0)
p ASCII p = "0"…"9"	Barcode orientation (def. 0, horizontal)
EM (hex.19, dec.25)	End of header

Barcode Types

A = 2/5 matrix (default)	B = 2/5 industrial	C = 2/5 interleaved
D = Code 11	E = Code BCD matrix	F = Code 39
G = Codabar	H = EAN 8 with HRI	I = EAN 8 without HRI
J = 2/5 matrix (default)	K = EAN 13 with HRI	L = EAN 13 without HRI
M = MSI/modified Plessey	N = UPC A with HRI	O = UPC A without HRI
P = UPC E with HRI	Q = UPC E without HRI	S = Code 128
T = EAN 128/GSI-128		

Post Office Barcode Types

US Postnet Barcode	= ESC [1 SP p
Planet Barcode	= ESC [2 SP p <data> EM
KIX Barcode	= ESC [2 SP k
Royal Mail Customer Barcode	= ESC [1 SP k
USPS Intelligent Mail Barcode (IMB)	= ESC [9 SP k

MTPL Bar Codes Commands Examples

Print Bar Codes with MTPL commands
(Barcode Mode Native)

Code 2/5 Matrix

1 2 3

Code 2/5 Industrial

1 2 3

Code 2/5 Interleaved

0 1 2 3

Code 11

▲1 2 3▲

BCD matrix

1 2 3

Code 39

* 1 2 3 *

CODABAR

123

EAN 8 with HRI

0123 4567

EAN 8 without HRI

EAN 13 with HRI

0 123456 789012

EAN 8 without HRI

Code MSI/modified Plessey

0 1 2 3

Figure 81. Bar Code Examples with MTPL Commands (Bar Code Mode Alt. 1)

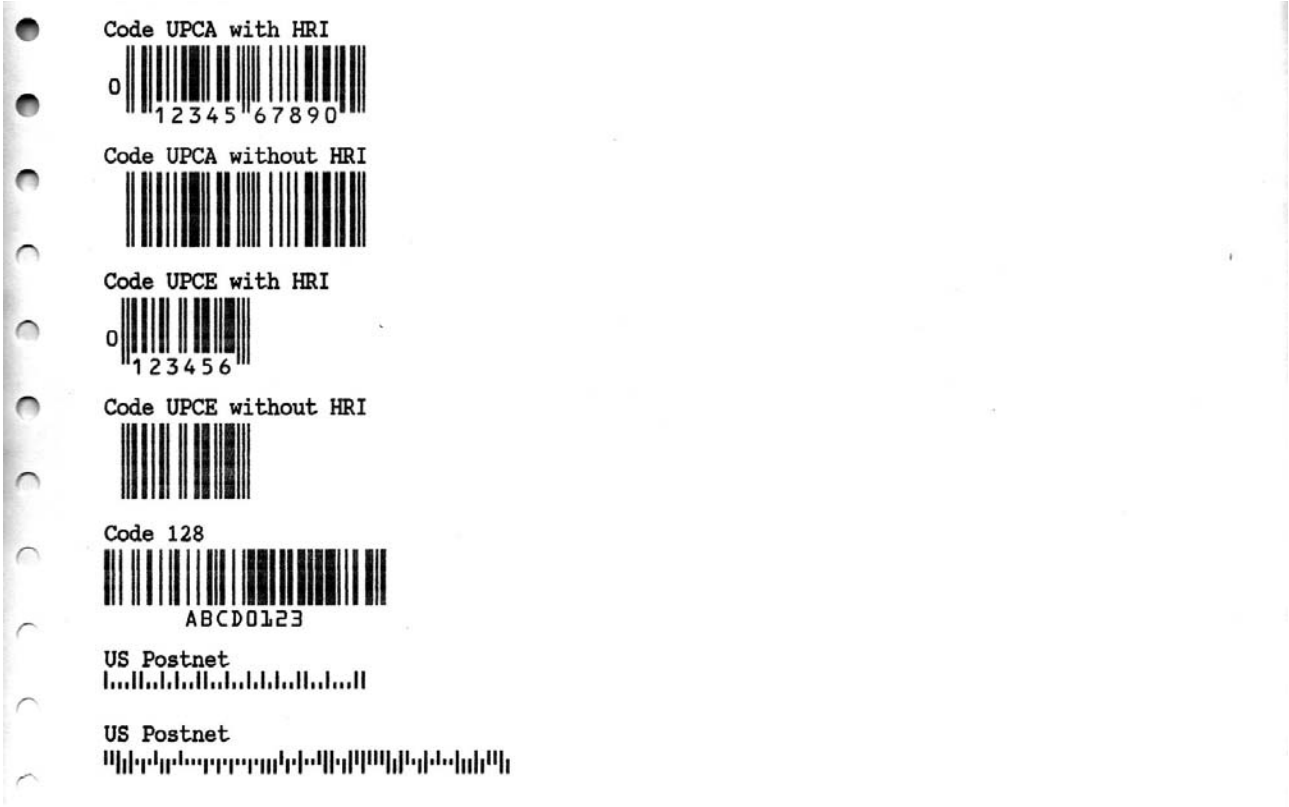

Figure 82. Bar Code Examples with MTPL Commands (Bar Code Mode Alt. 1)

```
0000  0D 0A 0D 0A 0A 0A 0A 0A 50 72 69 6E 74 20 42 61   ♪◙♪◙◙◙◙◙Print Ba
0001  72 20 43 6F 64 65 73 20 77 69 74 68 20 4D 54 50   r Codes with MTP
0002  4C 20 63 6F 6D 6D 61 6E 64 73 0D 0A 28 42 61 72   L commands♪◙(Bar
0003  63 6F 64 65 20 4D 6F 64 65 20 4E 61 74 69 76 65   code Mode Native
0004  29 20 0D 0A 0A 0A 43 6F 64 65 20 32 2F 35 20 4D   ) ♪◙◙◙Code 2/5 M
0005  61 74 72 69 78 20 0D 0A 1B 5B 3F 31 31 7E 1A 22   atrix ♪◙←[?11~→"
0006  41 33 3B 31 31 31 19 14 3A 31 32 33 3A 14 1B 5B   A3;111↓¶:123:¶←[
0007  3F 31 30 7E 0D 0A 0A 0A 43 6F 64 65 20 32 2F 35   ?10~♪◙◙◙Code 2/5
0008  20 49 6E 64 75 73 74 72 69 61 6C 20 0D 0A 1B 5B    Industrial ♪◙←[
0009  3F 31 31 7E 1A 22 42 33 3B 31 31 31 19 14 3A 31   ?11~→"B3;111↓¶:1
000A  32 33 3B 14 1B 5B 3F 31 30 7E 0D 0A 0A 0A 43 6F   23;¶←[?10~♪◙◙◙Co
000B  64 65 20 32 2F 35 20 49 6E 74 65 72 6C 65 61 76   de 2/5 Interleav
000C  65 64 20 0D 0A 1B 5B 3F 31 31 7E 1A 22 43 33 3B   ed ♪◙←[?11~→"C3;
000D  31 31 31 19 14 3A 31 32 33 3B 14 1B 5B 3F 31 30   111↓¶:123;¶←[?10
000E  7E 0D 0A 0A 43 6F 64 65 20 31 31 20 0D 0A 1B 5B   ~♪◙◙Code 11 ♪◙←[
000F  3F 31 31 7E 1A 22 44 33 3B 31 31 31 19 14 3A 31   ?11~→"D3;111↓¶:1

0010  32 33 3A 14 1B 5B 3F 31 30 7E 0D 0A 0A 42 43 44   23:¶←[?10~♪◙◙BCD
0011  20 6D 61 74 72 69 78 20 0D 0A 1B 5B 3F 31 31 7E    matrix ♪◙←[?11~
0012  1A 22 45 33 3B 31 31 31 19 14 3A 31 32 33 3A 14   →"E3;111↓¶:123:¶
0013  1B 5B 3F 31 30 7E 0D 0A 0A 43 6F 64 65 20 33 39   ←[?10~♪◙◙Code 39
0014  0D 0A 1B 5B 3F 31 31 7E 1A 22 46 33 3B 31 31 31   ♪◙←[?11~→"F3;111
0015  19 14 2A 31 32 33 2A 14 1B 5B 3F 31 30 7E 0D 0A   ↓¶*123*¶←[?10~♪◙
0016  0A 0D 0A 43 4F 44 41 42 41 52 20 0D 0A 1B 5B 3F   ◙♪◙CODABAR ♪◙←[?
0017  31 31 7E 1A 22 47 33 3B 31 31 31 19 14 2A 31 32   11~→"G3;111↓¶*12
0018  33 2A 14 1B 5B 3F 31 30 7E 0D 0A 0A 45 41 4E 20   3*¶←[?10~♪◙◙EAN
0019  38 20 77 69 74 68 20 48 52 49 20 0D 0A 1B 5B 3F   8 with HRI ♪◙←[?
001A  31 31 7E 1A 22 48 33 3B 31 31 31 19 14 3A 30 31   11~→"H3;111↓¶:01
001B  32 33 3A 34 35 36 37 3A 14 1B 5B 3F 31 30 7E 0D   23:4567:¶←[?10~♪
001C  0A 0A 45 41 4E 20 38 20 77 69 74 68 6F 75 74 20   ◙◙EAN 8 without
001D  48 52 49 20 0D 0A 1B 5B 3F 31 31 7E 1A 20 49 33   HRI ♪◙←[?11~→ I3
001E  3B 31 31 31 19 14 3A 30 31 32 33 3A 34 35 36 37   ;111↓¶:0123:4567
001F  3A 14 1B 5B 3F 31 30 7E 0D 0A 0A 45 41 4E 20 31   :¶←[?10~♪◙◙EAN 1

0020  33 20 77 69 74 68 20 48 52 49 20 0D 0A 1B 5B 3F   3 with HRI ♪◙←[?
0021  31 31 7E 1A 22 4B 33 3B 31 31 31 19 14 3A 30 31   11~→"K3;111↓¶:01
0022  32 33 34 35 36 3A 37 38 39 30 31 32 3A 14 1B 5B   23456:789012:¶←[
0023  3F 31 30 7E 0D 0A 0A 45 41 4E 20 38 20 77 69 74   ?10~♪◙◙EAN 8 wit
0024  68 6F 75 74 20 48 52 49 20 0D 0A 1B 5B 3F 31 31   hout HRI ♪◙←[?11
0025  7E 1A 20 4C 33 3B 31 31 31 19 14 3A 30 31 32 33   ~→ L3;111↓¶:0123
0026  34 35 36 3A 37 38 39 30 31 32 3A 14 1B 5B 3F 31   456:789012:¶←[?1
0027  30 7E 0D 0A 0A 43 6F 64 65 20 4D 53 49 2F 6D 6F   0~♪◙◙Code MSI/mo
0028  64 69 66 69 65 64 20 50 6C 65 73 73 65 79 20 0D   dified Plessey ♪
0029  0A 1B 5B 3F 31 31 7E 1A 22 4D 33 3B 31 31 31 19   ◙←[?11~→"M3;111↓
002A  14 3A 30 31 32 33 3B 14 1B 5B 3F 31 30 7E 0D 0A   ¶:0123;¶←[?10~♪◙
002B  0A 43 6F 64 65 20 55 50 43 41 20 77 69 74 68 20   ◙Code UPCA with
002C  48 52 49 20 0D 0A 1B 5B 3F 31 31 7E 1A 22 4E 33   HRI ♪◙←[?11~→"N3
002D  3B 31 31 31 19 14 3A 30 31 32 33 34 35 3A 36 37   ;111↓¶:012345:67
002E  38 39 30 31 3A 14 1B 5B 3F 31 30 7E 0D 0A 0A 43   8901:¶←[?10~♪◙◙C
002F  6F 64 65 20 55 50 43 41 20 77 69 74 68 6F 75 74   ode UPCA without

0030  20 48 52 49 20 0D 0A 1B 5B 3F 31 31 7E 1A 20 4F    HRI ♪◙←[?11~→ O
0031  33 3B 31 31 31 19 14 3A 30 31 32 33 34 35 3A 36   3;111↓¶:012345:6
0032  37 38 39 30 31 3A 14 1B 5B 3F 31 30 7E 0D 0A 0A   78901:¶←[?10~♪◙◙
0033  43 6F 64 65 20 55 50 43 45 20 77 69 74 68 20 48   Code UPCE with H
0034  52 49 20 0D 0A 1B 5B 3F 31 31 7E 1A 22 50 33 3B   RI ♪◙←[?11~→"P3;
0035  31 31 31 19 14 3A 30 31 32 33 34 35 36 37 3A 14   111↓¶:01234567:¶
0036  1B 5B 3F 31 30 7E 0D 0A 0A 43 6F 64 65 20 55 50   ←[?10~♪◙◙Code UP
0037  43 45 20 77 69 74 68 6F 75 74 20 48 52 49 20 0D   CE without HRI ♪
0038  0A 1B 5B 3F 31 31 7E 1A 20 51 33 3B 31 31 31 19   ◙←[?11~→ Q3;111↓
0039  14 3A 30 31 32 33 34 35 36 37 3A 14 1B 5B 3F 31   ¶:01234567:¶←[?1
003A  30 7E 0D 0A 0A 43 6F 64 65 20 31 32 38 20 0D 0A   0~♪◙◙Code 128 ♪◙
003B  1B 5B 3F 31 31 7E 1A 22 53 33 3B 31 31 31 19 14   ←[?11~→"S3;111↓¶
003C  41 42 43 44 30 31 32 33 14 1B 5B 3F 31 30 7E 0D   ABCD0123¶←[?10~♪
003D  0A 0A 55 53 20 50 6F 73 74 6E 65 74 0D 0A 1B 5B   ◙◙US Postnet♪◙←[
003E  3F 31 31 7E 1B 5B 31 20 70 31 32 33 34 35 36 37   ?11~←[1 p1234567
003F  0D 1B 5B 3F 31 30 7E 0D 0A 0A 55 53 20 50 6F 73   ♪←[?10~♪◙◙US Pos

0040  74 6E 65 74 0D 0A 1B 5B 3F 31 31 7E 1B 5B 31 20   tnet♪◙←[?11~←[1
0041  6B 31 32 33 34 35 36 37 38 39 30 31 32 33 34 35   k123456789012345
0042  36 37 38 39 30 31 32 33 34 35 36 37 38 39 30 31   6789012345678901
0043  0D 1B 5B 3F 31 30 7E 0D 0A 0A 0A 0A 0A 0A 0A 0C   ♪←[?10~♪◙◙◙◙◙◙◙♀
```

Figure 83. Hex Dump of example on figures 81, 82

Bar Codes handled in SEIKOSHA Commands (Alt. 2 Bar Code Mode)

The S809 partially integrates in the firmware a sub-set handling of the SEIKOSHA BP-9000 Bar Codes specific commands.

The complete and detailed information for these can be found in specific SEIKOSHA BP-9000 programmer manual available on web.

#	Function	Bar Code Commands
1.	Bar code type	DC4 DC4 T n
2.	Element width	DC4 DC4 E n1 n2
3.	Bar code height	DC4 DC4 H n
4.	Setting HRI on and off	DC4 DC4 I n
5.	HRI font	DC4 DC4 F n
6.	Check character	DC4 DC4 C n
7.	Starting the bar code data sequence	ESC SI
8.	Ending the bar code data seqence	ESC SO
9.	Bar code data sequence	DC4 DC4 B n d1 d2 ... dk
10.	Printing density	DC4 DC4 D n
11.	Guard bar expansion	DC4 DC4 G n
12.	Start and stop characters	DC4 DC4 N n1 n2
13.	Bar code rotational angle	DC4 DC4 R n
14.	Disabling HRI of the start and stop characters	DC4 DC4 S n
15.	Value input mode	DC4 DC4 V n
16.	Initializing the bar code mode	DC4 DC4 @

Bar Code Type (n)

0	Industrial 2 of 5	**5**	Code39	**10**	UPC-A
1	Interleaved 2 of 5	**6**	Code93	**11**	UPC-E
2	Matrix 2 of 5	**7**	Code128	**12**	Postnet
3	Codabar	**8**	EAN-8		
4	Code11	**9**	EAN-13		

SEIKOSHA Commands Bar Codes Examples

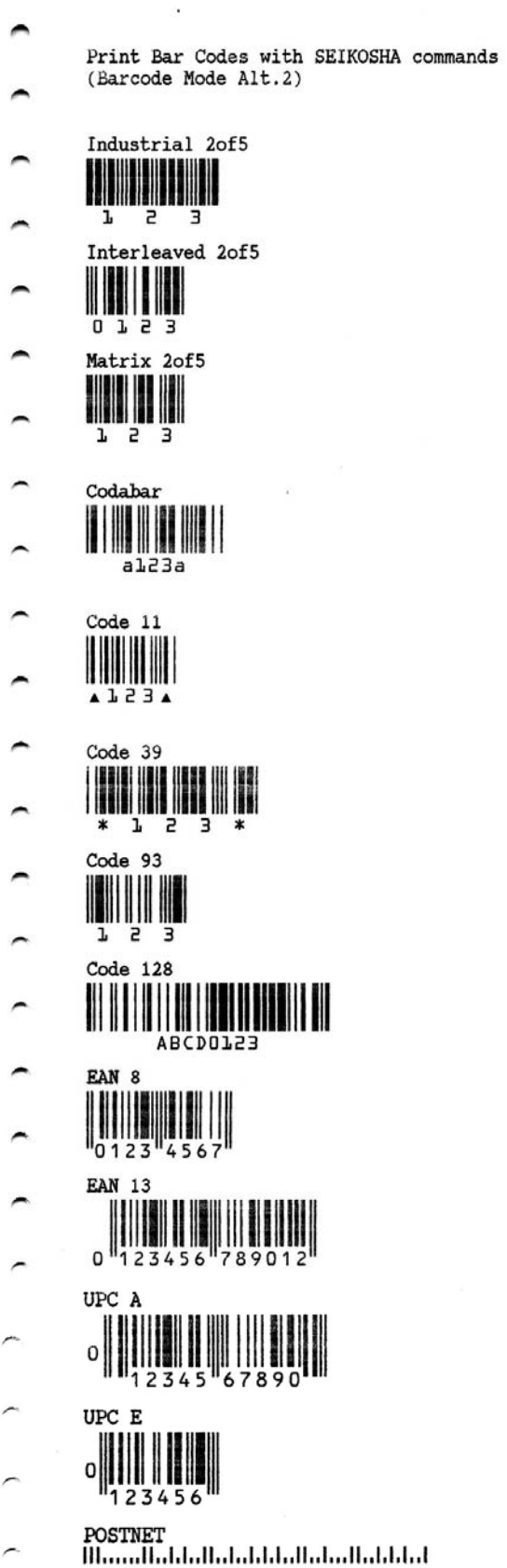

Figure 84. Bar Code Examples with SEIKOSHA Commands (Bar Code Mode Alt. 1)

```
0000  0D 0A 0A 14 14 40 50 72 69 6E 74 20 42 61 72 20   ♪◙◙¶¶@Print Bar
0001  43 6F 64 65 73 20 77 69 74 68 20 53 45 49 4B 4F   Codes with SEIKO
0002  53 48 41 20 63 6F 6D 6D 61 6E 64 73 0D 0A 28 42   SHA commands♪◙(B
0003  61 72 63 6F 64 65 20 4D 6F 64 65 20 41 6C 74 2E   arcode Mode Alt.
0004  32 29 20 0D 0A 0A 0A 49 6E 64 75 73 74 72 69 61   2) ♪◙◙◙Industria
0005  6C 20 32 6F 66 35 20 0D 0A 14 14 54 00 14 14 48   l 2of5 ♪◙¶¶T ¶¶H
0006  06 14 14 49 01 1B 0F 31 32 33 1B 0E 0D 0A 0A 49   ♠¶¶I☺←☼123←♫♪◙◙I
0007  6E 74 65 72 6C 65 61 76 65 64 20 32 6F 66 35 20   nterleaved 2of5
0008  20 0D 0A 14 14 54 01 14 14 48 06 14 14 49 01 1B    ♪◙¶¶T☺¶¶H♠¶¶I☺←
0009  0F 31 32 33 1B 0E 0D 0A 0A 4D 61 74 72 69 78 20   ☼123←♫♪◙◙Matrix
000A  32 6F 66 35 20 20 0D 0A 14 14 54 02 14 14 48 06   2of5  ♪◙¶¶T☻¶¶H♠
000B  14 14 49 01 1B 0F 31 32 33 1B 0E 0A 0A 0A 43 6F   ¶¶I☺←☼123←♫◙◙◙Co
000C  64 61 62 61 72 20 20 0D 0A 14 14 54 03 14 14 48   dabar  ♪◙¶¶T♥¶¶H
000D  06 14 14 49 01 1B 0F 61 31 32 33 61 1B 0E 0A 0A   ♠¶¶I☺←☼a123a←♫◙◙
000E  0A 43 6F 64 65 20 31 31 20 20 0D 0A 14 14 54 04   ◙Code 11  ♪◙¶¶T♦
000F  14 14 48 06 14 14 49 01 1B 0F 31 32 33 1B 0E 0A   ¶¶H♠¶¶I☺←☼123←♫◙

0010  0A 0A 43 6F 64 65 20 33 39 20 20 0D 0A 14 14 54   ◙◙Code 39  ♪◙¶¶T
0011  05 14 14 48 06 14 14 49 01 1B 0F 2A 31 32 33 2A   ♣¶¶H♠¶¶I☺←☼*123*
0012  1B 0E 0D 0A 0A 43 6F 64 65 20 39 33 20 20 0D 0A   ←♫♪◙◙Code 93  ♪◙
0013  14 14 54 06 14 14 48 06 14 14 49 01 1B 0F 31 32   ¶¶T♠¶¶H♠¶¶I☺←☼12
0014  33 1B 0E 0D 0A 0A 43 6F 64 65 20 31 32 38 20 20   3←♫♪◙◙Code 128
0015  0D 0A 14 14 54 07 14 14 48 06 14 14 49 01 1B 0F   ♪◙¶¶T•¶¶H♠¶¶I☺←☼
0016  41 42 43 44 30 31 32 33 1B 0E 0D 0A 0A 45 41 4E   ABCD0123←♫♪◙◙EAN
0017  20 38 20 20 0D 0A 14 14 54 08 14 14 48 06 14 14    8  ♪◙¶¶T◘¶¶H♠¶¶
0018  49 01 1B 0F 30 31 32 33 34 35 36 37 1B 0E 0D 0A   I☺←☼01234567←♫♪◙
0019  0A 45 41 4E 20 31 33 20 20 0D 0A 14 14 54 09 14   ◙EAN 13  ♪◙¶¶T○¶
001A  14 48 06 14 14 49 01 1B 0F 30 31 32 33 34 35 36   ¶H♠¶¶I☺←☼0123456
001B  37 38 39 30 31 32 1B 0E 0D 0A 0A 55 50 43 20 41   789012←♫♪◙◙UPC A
001C  20 20 0D 0A 14 14 54 0A 14 14 48 06 14 14 49 01     ♪◙¶¶T◙¶¶H♠¶¶I☺
001D  1B 0F 30 31 32 33 34 35 36 37 38 39 30 31 1B 0E   ←☼012345678901←♫
001E  0D 0A 0A 55 50 43 20 45 20 20 0D 0A 14 14 54 0B   ♪◙◙UPC E  ♪◙¶¶T♂
001F  14 14 48 06 14 14 49 01 1B 0F 30 31 32 33 34 35   ¶¶H♠¶¶I☺←☼012345

0020  36 37 1B 0E 0D 0A 0A 50 4F 53 54 4E 45 54 20 20   67←♫♪◙◙POSTNET
0021  0D 0A 14 14 54 0C 1B 0F 30 31 32 33 34 35 36 37   ♪◙¶¶T♀←☼01234567
0022  38 39 1B 0E 0D 0A 0A 0C                            89←♫♪◙◙♀
```

Figure 85. Hex Dump of example on figure 84

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Customer Support

Printronix Customer Support Center

IMPORTANT **Please have the following information available prior to calling the Printronix Customer Support Center:**

- Model number
- Serial number (located on the back of the printer)
- Installed options (i.e., interface and host type if applicable to the problem)
- Configuration printout:

Press the ON LINE key to take the printer OFF LINE		
Press the PROGRAM key	PRINT OUT? NO	Is displayed
Press the → key	PRINT OUT? YES	The PROGRAM SETUP PRINTOUT is printed
Press the ↓ key until	PRINT STATS? NO	Is displayed
Press the → key	PRINT OUT? YES	The USAGE STATISTICS DATA PRINTOUT is printed
Press the ↓ key until	CONFIG MENU NO	Is displayed
Press the → key to display	CONFIG MENU YES	
Press the ↓ key	PRINT OUT? NO	Is displayed
Press the → key	PRINT OUT? YES	The CONFIGURATION SETUP PRINTOUT is printed
Press the PROGRAM key		
Press the TEAR key and tear off the printout at the perforation		

- Is the problem with a new install or an existing printer?
- Description of the problem (be specific)
- Good and bad samples that clearly show the problem (faxing or emailing these samples may be required)

Americas	(714) 368-2686
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